# Libraries Achieving Greatness: Technology at the Helm

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# Libraries Achieving Greatness: Technology at the Helm

## Introduction

Libraries have been around for thousands of years. There have been many libraries that can be considered great, perhaps starting with the Library of Alexandria, which has long since perished. Typically this greatness is associated with a larger building or a larger collection and this great library is found in a community rich in resources. We also see this richness in some of the world's finest museums where it is no coincidence that they are located in some of the world's greatest cities. Library buildings can stand as monuments to their importance. New York Public Library's research building with its iconic lions standing out front is representative of architectural greatness. Many libraries are considered great by the size of their collections, and Harvard University's sixteen million volumes offer an example of this (Lauerman). Yet collection size and architecture are only two measures of greatness.

Libraries can also be considered great because of their services and responsiveness to their community, be it a tiny town or large city, a small college or a major research university. Technology often takes a key role in the delivery of the most innovative of services. This paper will focus on those libraries that are considered "great" because of a specific technology-based service they have introduced.

Offering a brief overview of library technology and a brief history of library services and greatness this paper provides a basis of understanding for these new services. Early technology projects look back to the first days of the card catalog, driven by standards that focused on creating a uniform size of the card, the display of the information, and even the placement of the hole in the card. Standards still play a key role in providing the infrastructure for library

technology; it is much easier to automate a product or service when many sites do it the same way. As libraries moved into the era of computer technology, early automation projects focused on improving processes libraries were doing such as book circulation, or inventory. Improved processes, such as circulation may also benefit library users, but the first goal was often to improve internal operations. My research focuses on services that improve how our patrons use our libraries and resources, rather than on how libraries perform internal operations. This project is original research into the application of a technology that makes individual libraries great. The goal of this paper is primarily to offer some understanding of the environment and events that led to the creation of the identified project or service, to identify similarities and differences, and to see if there are key factors that are common in their success.

# Methodology

The origin of the idea for this research project came from a series of conversations I had while employed at the Bruce T. Halle Library at Eastern Michigan University. It related to some of the challenges of implementing projects with a very small library systems office, a University Information Technology office that was not cutting edge, and working with librarians who, like the teaching faculty, had contracts that were only for eight months a year. Rather than focus my research on the negative aspects, I instead wanted to focus on how libraries could be successful in technology projects.

My initial plan was to prepare a survey and conduct the interviews over the phone so that the process would be iterative, giving me a chance to refine my questions and address answers that did not quite yield the responses I needed. One of my criteria for inclusion in this process required mainly, that this be a project that primarily benefits the public, i.e. the libraries' user community. As I described earlier in my paper, many early technology projects involved strategies that made traditional library processes easier and I did not wish to focus on those. I also wanted this project to be a technology or service that had some degree of development work required by the organization that implemented it. I wanted to go beyond out-of-the-box software and hardware. Indeed, many libraries are using such products and these products may offer excellent service, but that did not answer my questions about the process as fully. Since my intent was to study some of the implementation processes in more detail, I excluded those products from my survey. The final result gave me the ten sites I included, since I excluded one respondent where I determined their project appeared to be more out-of-the-box than I had

initially assumed. I also determined that the participating library had to be in the United States or Canada since I felt I would best understand their organizational model and the costs of surveying via the phone and in person would be lower.

Baker (2004) states in his book, "A strategy that does not drive and facilitate change and improvement is of little use. It therefore requires an implementation process." I designed a survey that focused on the specifics of the project from its inception to the design and implementation, various iterations, feed-back from users, and maintenance and ongoing support. Some of the keys here were to understand what inspired the subject library's project/product and how this library was able successively to implement it. While this could incorporate infrastructure, my assumption was that having computer power and resources alone was not enough. I also assumed it required that the staff have an expertise, dedication, and interest to see this project happen. I considered the model of the work of the prolific Thomas Edison and his laboratory at Menlo Park, since much of his success was based on persistence, trying process after process until one of them worked satisfactorily. He also had a large staff and finely stocked laboratory that helped him with his experiments. This speaks to the value placed on the facilities and sufficient staff to support the development and implementation.

I also assumed project success required a shared vision and buy-in from the various parties involved to keep such a project moving forward and not end up in a stack in someone's in-box or stuck near the bottom of a to-do list. "Collaboration should undergird all strategic developments of the university, especially at the service function level. Greater collaboration among librarians, information technology specialists, and faculty on research project design and execution should be strongly supported. Areas of immediate concern include mechanisms of scholarly publishing, institutional repository development and sustainability, data curation

broadly defined, and digital resource development. Any research project, digital resource, or tool that cannot be shared, is not interoperable, or otherwise cannot contribute to the wider academic and public good should not be funded"(Council on Library and Information Resources, 2008). Finally, I wanted to understand the inspiration for the project, because that is often a part of a new project – seeing a need and trying to develop a solution, so that was a part of my survey. John Howard, a former Associate University Librarian at Arizona State University once said that technology is the easy part. The hard part is knowing what you want to do and having the right staff.

While one may expect research libraries to attain greatness, it is my belief that a smaller library can also be great. At the same time, while size may not be the only determining factor, technology in complex organizations, such as libraries, does require a depth of staffing and a degree of technical sophistication and expertise. To explore these aspects, I looked at a number of statistical factors regarding the size of the staff.

To solicit libraries for the survey, I pursued multiple paths. One was based on my personal knowledge of some of the technology-based services developed by libraries. I also consulted with my professional colleagues around the nation to identify other libraries that might be candidates for my research. I worked with agencies such as the Association of Research Libraries (http://www.arl.org/) and the American Library Association (http://www.ala.org/) to garner potential candidates.

I used Phoenix Public Library as my initial test study. I am on the Board of Advisors of that Library and I know several of the key administrators quite well. This relationship gave me an opportunity to work with them and refine my survey instrument. My process with hem began

with an onsite meeting to discuss my goals. They returned an extremely detailed and comprehensive response.

As I prepared to survey other sites, I became aware of a grant opportunity from AMIGOS Library Services. AMIGOS (http://www.amigos.org/) is a library cooperative offering services in Arizona, Arkansas, New Mexico, Oklahoma, and Texas. The Fellowship application process is only open to employees of AMIGOS member libraries (http://www.amigos.org/?q=fellowship). In the application process I asked for $7,500, the maximum award, to pay for travel to the sites which would allow me to conduct in person interviews. I felt this would enable more in-depth interviews. I also asked for money to purchase a digital tape recorder and for money for phone calls. My grant request also included funds for my research course.

The actual grant award of $1,500 was considerably less than my request, but still appreciated. After revaluating the process in terms of the award amount, and based on the thorough response from Phoenix Public Library (PPL), I decided to forgo the travel which was now price prohibitive and return to the idea of written responses.

This left me with the costs of the research course from Eastern Michigan University as my only significant expense. I used the grant money to subsidize those costs, paying the remainder of them myself. The grant award from AMIGOS was made to Arizona State University, not me personally. Because of the grant, I had to add one additional step in the process, and that was getting my project approved by the Institutional Research Board of Arizona State University – where I am employed. I received a waiver from the process since I was only asking my participants to complete a written survey, but I still had to get all my respondents to sign a release statement. Eastern Michigan University, where I am a student, advised that the ASU IRB process would be sufficient and I did not need to go through their IRB

processes. The grant application and the IRB approval process added over nine months to my timeline.

I began sending out surveys to sites in August of 2008, and I continued to identify additional sites to add to my pool. The final sites received the survey in late October 2008. Some sites responded to the survey in just matter of days. Other sites took much longer. As my time process began to drag and in order to draw this process to some sort of close, I finally set a "final" deadline of January 31, 2009. I felt it was critical to begin my analysis and writing process and that I could not afford to further delay. Amazingly with the "final" deadline set and some phone calls to sites prodding them to finish, all the sites in my list responded and I received their responses within a few days of that "final" deadline. One of my key disappointments was receiving no response at all from some sites to participate in the survey.

Due to the difficulty in getting some sites to submit results in a timely manner, I chose to use only the data I gathered in my initial survey, even if the data might be less comprehensive and less accurate that I had initially desired. I determined that I could not impose further with telephone calls or additional questions about the areas that were less clear. This was a mistake on my part. Although several were comprehensive, no other site returned as detailed a response as did PPL.

To supplement my data, I did some additional research into their products: looked at websites – including those of the libraries and their home institution, and in one case, I asked a follow-up question to North Carolina State University about their project with Endeca that I felt was essential to the understanding several other responses. This was the one exception to the iterative process.

While I have taken the time to document much of this report, my 30 years of experience as a librarian and my extensive personal knowledge of library technology has given me the ability to write some of this report, without citing every detail.

## A Very Brief History of Great Libraries and Technology

To put this research into some context, this paper will provide a brief history of great libraries and show how technology and standards evolved and were used to support library processes. In a "brief" history of libraries and greatness it is impossible to cover this topic thoroughly or to be all inclusive. Such a discussion could easily be a multi-volume encyclopedic work. My goal here is to provide an overview that will put my topic of libraries achieving greatness using technology into context with library history.

Great libraries have been around for a very long time. One of the first and possibly the most famous and largest of its time was the Library of Alexandria. Believed to have been founded in the third century BC, this collection no longer exists, allegedly destroyed in part by a fire in 48 BC, and also likely the subject of looting and theft by invading armies. In its day, the library was well know throughout the Mediterranean region, and was famous not only for its collections, but also its librarians (Battles, 2003; Brin, 2009; Harris, 1995; Jochum, 1999).

Benjamin Franklin created what was likely the first public library in the United States. Unlike the more modern view of public libraries supported by tax dollars, this was a subscription library where members paid a small fee to borrow books. Established in Philadelphia in 1731 with 50 founding shareholders, it was chartered as the "Library Company of Philadelphia" in 1742. This library was first meant to benefit only the members, so that they could share books on the issues they discussed during their meetings. Over time this library grew to be bigger than many university libraries and had collections of books and artifacts, such as fossils and coins. At the time of the founding of the Library Company of Philadelphia, Philadelphia, Pennsylvania,

was the seat of the national government. The Library Company granted access to members of the Second Continental Congress, the Constitutional Convention and others. The Library Company of Philadelphia still exists today as an independent research library (Gertzog & Beckerman, 1994; Harris, 1995; Library Company of Philadelphia; OnLine Best Colleges).

In the United States, Boston Public Library became the first city funded library in 1854 – some 78 years after the founding of this country. Captain Robert Keayne had originally donated books to the city of Boston and the city created a space. The collection was rarely used, and was destroyed in a fire in 1747. The city later built a new library. New York Public Libraries' historic location with its iconic marble lions opened in 1911. Both the 19911 New York Public library and the 1854 Boston Public Library buildings are still standing and in use as libraries. They would be considered by many to be great (Gertzog & Beckerman, 1994; Harris, 1995; *Foster + partners selected as architects for new central library in the New York Public Library's historic fifth avenue building*; *Lives and letters: The lion and the mouse : The New Yorker* ).

Industrialist Andrew Carnegie donated millions of dollars for libraries with the goal of helping poor immigrants improve their English skills. Carnegie opened thousands of libraries in the U.S. during the end of 19th and in early 20th centuries. To see the growth in their numbers, by 1876 the year the American Library Association was founded, there were 3,682 public libraries (systems) with 12 million volumes open to the public at no cost to the users. In 1776 there were just 29 public libraries with total holdings of 45,623 volumes. A different comparison shows that there were 16,543 public library buildings (not systems) in 2009. In 1849, New Hampshire passed the Free Public library law, which stated, "Every public library ... shall be opened to the free use of every inhabitant of the town or city ... for the general diffusion of intelligence among all classes of the community ..." (Gertzog & Beckerman, 1994; Gregorian, 2007; Nix; *U.S.*

*public libraries provide critical access to Internet services.*). Coming forward to today, public libraries play a vital role in education and democracy. In the recent downturn of our economy, most public libraries are reporting increased use. Public Libraries are also important for the technology they offer, because they provide some citizens with their only source of Internet connectivity. In an environment where increasing numbers of government resources and employment opportunities are only available on the web, this access is vital (American Library Association, 2009; D. M. Davis, Bertot, & McClure, 2009).

Looking at other types of libraries, Harvard University Library started with donations from the Reverend John Harvard in 1640's and today has over 16 million volumes in its collections. The Library of Congress bought books in 1800 with funds from Congress. Unfortunately that library was burned during the War of 1812 and most of the collection was destroyed. Former President Thomas Jefferson then offered his personal library for purchase and Library of Congress was restarted. Today, the Library of Congress holds some 142 million items including 32 million cataloged books and 62 million manuscripts (Brin, 2009; Harris, 1995; Harvard University; Lauerman; U.S. Library of Congress).

Libraries of today rely heavily on standards and some might say we, as a profession, are obsessed about many things. It is possible this relates back to Melvil Dewey who was said to be obsessed with minutia and standards. However, standards have led to and provided a foundation for many of the automated technologies in libraries. Standards include things such as the MARC record and the many other "Z39" standards (discussed later in this paper) that have played such an important role in library programming (Gertzog & Beckerman, 1994; National Information Standards Organization).

Melvil Dewy is sometimes referred to as the father of librarianship and that can certainly be true for librarianship in the United States. Dewey tended to be an obsessive individual focusing on standards, good practices, and good service. In addition to being a founding member of the American Library Association, he developed the Dewey Decimal Classification System (discussed elsewhere), developed standards for card catalogs, and insisted on standards for good handwriting on cards and books (Dewey, 1887; Green, 2009; Patschke).

The card catalog dates back to the days of the French revolution when books were initially cataloged on the backs of blank playing cards. Some 50 years later, Harvard University began the first known similar effort in the United States of cataloging its books on slips of paper that were 6½" long by 1½" wide. Other libraries developed similar strategies such as one at the Boston Public Library where a hole was bored through the center of the slip and a string run through the holes and the slips were placed into a drawer where the cards could easily move backward and forward through them. Harvard later switched to a system in which cards measuring 5x12.25 cm (two x five inches) were used. Previous catalogs had been for staff only, but Harvard created the first catalog for public use (Kirkland; Nix, 2009; Nix).

Standards came into play again when, in 1877, the American Library Association recommended two standard sizes for card catalog cards; one that was 5x12.25 cm in use at Harvard and also a size of 7.5x12.25 cm which eventually became the predominant option for library catalog cards in the United States. Companies began marketing card catalog furniture with drawers and frames and the cards that went in them. At that time cards were mostly handwritten, so following the admonishments of Dewey, neat handwriting was a must for librarians. Soon after that, commercially printed cards for new books became available. Even the placement of the hole became a new standard (Nix).

By the turn on the 20th century, the Library of Congress was selling printed cards available on the size of 7.5x12.25 cm. Libraries developed a number of practices such as typing the subject headings in red ink across the top, and tying cards together at the bottom when one card with details about the book was not sufficient to hold all the information. OCLC (discussed later) also produced cards. Today, due to online catalogs, few libraries, if any, still maintain card catalogs except for historic purposes and collections (Nix).

Another standard in libraries is that of book placement on shelves. In 1873, Melvil Dewey created the Dewey Decimal Classification (DDC) system, a method for organizing materials into categories. The DDC uses ten overarching categories, and then uses subcategories with further refinement to deal with increasingly specific topics. This system created standards for shelf arrangement and is the primary system used in most public libraries in the United States. Another hierarchical system, Library of Congress (LC), is used in most academic libraries in the U.S. DDC uses Arabic numerals exclusively, making it truly international; LC uses a combination of the Roman alphabet and Arabic numerals (American Libraries, 1997; Avram & Library of Congress, 1975; Green, 2009; OCLC Inc; Patschke).

As a child in the 1950's, I remember a book check-out system where I filled out a card that showed the names of all the people who had previously checked out that book. At the time of check-out, the book card was turned in and I was given a date due card. Such systems offered little opportunity to easily identify what was checked out at any one time without perusing each individual card. It also did not scale to larger libraries. One effort to improve this process included the use of McBee Key-sort cards, where the user filled out a card, and then a hole was punched in a certain location for the date due and it was filed by classification number and sorted. Once could then see what books were checked out by classification number. When it

was time to check for books that were past due, the library used a rod inserted through holes in the cards, which theoretically picked up most of the cards, leaving behind those that were past due based on where the hole was punched. Unfortunately this also sometimes resulted in spilling the card all over the floors, to the amusement of any observers. Other libraries used Hollerith computer punch cards, now moving us into early computer efforts. The disadvantage of all these system was that there was no real time information. It was difficult to find out what was checked out when the book was not on the shelf. Finally technology provided real-time, online systems with access to current information. Today many check-out systems have advanced to self-service stations that operate much like the self checkout in the grocery store, making use of bar codes or possibly RFIDs (Radio Frequency Identification). The RFID has even led to systems that will presort books as they are returned, to facilitate the shelving process (Breeding; Crawford, 207).

One of the most basic standards that underlie how many libraries operate today is the MARC (MAchine Readable Cataloging) record. Henriette Avram is known as the mother of the MARC record. Avram got a job at the Library of Congress in 1965 and soon developed the MARC project during 1967-1970. Avram and her colleagues proposed a format for a standardized machine readable catalog record which involved a format and catalog card mark up. It was created as a tool for the sharing of catalog records and is really a telecommunications format – to share data in an automated fashion, not a cataloging tool. MARC has enabled online systems, shared utilities such as OCLC, and library networks, all of which would have been impossible without the MARC format. The MARC record became known as ANSI (American National Standards Institute) standard Z39.2. There are many other ANSI and other types of standards used in libraries, as well. All of these standards serve to convey electronic information

in a rapid manner (American Libraries, 1997; American Libraries, 2006; McCallum, 2003; National Information Standards Organization; U.S. Library of Congress. Information Systems Office & Avram, 1969).

Libraries have almost always been about sharing. One effort in sharing was to share cataloging records so that a cataloger did not have to create each record from scratch. In the 1950's a series of volumes, known as the National Union Catalog, was released with copies of catalog records from libraries around the country printed in them. A librarian would have to manually search through the volumes to find the record s/he desired. Fortunately they were organized by some key access points. As the set grew, additional volumes were added, meaning that one had to search the first set, then the next, and so on. It was not very efficient, but in some cases, it was considered of benefit. Due to the large number of volumes, only larger libraries had copies. The pre 1956 imprint series was 528,000 pages in 754 volumes requiring 130 feet of shelving space (Beall & Kafadar, 2005).

The state of Ohio became a leader in resource sharing when, in 1967; they developed a system for sharing and reducing the cost of cataloging. This system is known as OCLC. The concept was that original cataloging could be done in an automated environment and then shared so that individual libraries would not need to spend time searching the NUC and duplicating each other's work. The project was very successful, and in 1977, OCLC expanded and allowed libraries outside of Ohio to participate. At one point, libraries did their cataloging on OCLC and then got catalog cards of their records. Today most libraries load their records into a local ILS (Integrated Library System) and catalog cards are mostly a relic of the past. OCLC now serves over 71,000 libraries in 112 counties around the world. OCLC services have also greatly

expanded and cover many forms of resource sharing, not covered here (Kilgour, Long, Landgraf, & Wyckoff, 1993; OCLC, Inc).

In the 1960s and 1970s libraries began to look at processes for automation or mechanization of certain routine functions and they became very creative. One must keep in mind that this time period predates the personal computer. Three different sources consulted offer a window into some of the activities occurring at this time. One is a self-review of the library automaton career of Walt Crawford, long involved in libraries, but not a librarian himself. Another is a retrospective review of library technology from the International Federation of Library Associations and Institutions. The final source is a series of reprints in a journal issue from pervious issues of the journal of a division of the American Library Association - the Library and Information Technology Association (LITA) and its precursor, the Information Science and Automation Division. This issue celebrating the 25th anniversary of the LITA journal is known as *Information Technology and Libraries* and was formerly titled the *Journal of Library Automation.* While this latter issue includes a section on the early days of organizing the collaborative efforts of librarians working automation projects, the IFLA review notes that there were luddites who felt that libraries should not embrace this automation technology (Crawford, 207; Introduction to the silver anniversary issue. 1993; McCallum, 2003; Salmon, 1993).

One experiment involved the use of the IBM 701 Calculator to work with cataloging processes (Tillitt, 1993); while others were working with large computers such as an IBM 360. Mainframe type computers, time sharing, and computing systems were very expensive and so the management of these resources was critical (Crawford, 207; McCallum, 2003). Another experiment focused on adding content and providing access to other resources beyond books (Potter, 1993). Berkeley with extensive serials holdings was seeking a way to help manage its

collections. Librarians there developed a system using KWIC (Key Word In Context) indexes and union catalogs (Crawford, 207). Stanford University was working with a project know as BALLOTS - Bibliographic Automation of Large Library Operations using a Time-sharing System, beginning in 1967, and with a series of iterations into the late 1960s and early 1970s (Stanford university's BALLOTS system.1993). Another effort to share catalog records, similar to OCLC (Kilgour et al., 1993) was the Washington Library Network, which has since merged with OCLC (Reed, 1993). In the early 1970s, Berkeley was designing a system to produce a key word index in print and a microfilm list of serials titles, using MARC as a basis for the data entry (Crawford, 207). By 1975 Stanford had a union list of serials along with its partners, the University of California San Francisco and the University of California Santa Barbara. Evolving standards fed the development and the ability to share resources and programming (Crawford, 207; McCallum, 2003).

One of the next key steps that came about in the 1980s was the rise of a numbers of organizations providing a system for managing book purchases, circulation, catalog records, journal check-ins, and a public catalog. These systems are known by a number of names, including Integrated Library Systems (ILS) since the data is shared (integrated) among the various components. The next pages present a number of ILS companies to show some of the histories. This is not a comprehensive list of companies by any means. Some of these companies still exist today, while others have merged or disappeared. They are not listed here in any specific order (Breeding, 2008; McCallum, 2003).

Data Trek was founded in 1982 by brothers Scot and David Cheatham. They were asked to develop a system to manage a corporate library collection. Within three months they developed a system running on 8” Verbatim floppy disks. They quickly acquired many more

customers, primarily through word of mouth. Georgia Power Company, where this author worked, became their 30th customer using their catalog product. The system originally used dBase II because it had its own programming language. Data Trek and its products grew through a series of acquisitions and mergers and is now known by the name EOSI (EOSI).

Begun in the early 1980s as a system in which libraries could download their records into a system to speed circulation of those items, Innovative Interfaces became known as a system with a very strong acquisitions and serials check-in system, along with its other modules. The system has grown and is now a major player in the United States and abroad (Innovative Interfaces, Inc).

VTLS (Virginia Tech Library System) began in the 1975 as a circulation and finding system at Virginia Polytechnic Institute Library. By 1980, it had evolved and was the first ILS system using making use of MARC records. VTLS continues to be one of the major products in the library market place (VTLS, Inc.).

In 1976, Northwestern University began a library automation project which would eventually become NOTIS - Northwestern Online Totally Integrated System, under the leadership of two computing professionals, James Aagard and Velma Veneziano. The goal was that this would be an online system and not a batch system. In 1970, the first prototype was implemented. By 1980, a few other libraries had been given free copies of the program for their use. Not long after that, the University recognized they had a commercially viable product. Throughout the 1980s, NOTIS became one of the leading ILS products among large university libraries in the United States, with over 200 sites using the product. NOTIS was eventually purchased by Ameritech Library Services, a division of the former telecommunication giant. Eventually NOTIS ran its course. It was written for large IBM mainframe using primarily

assembler programming language. As technology changed, this product could not adapt to the changes and now there are no libraries using NOTIS (Drake, 2003).

Dynix started around 1983 and the programmers created a client-server system known as Marquis. By the mid 1990s Ameritech Library Services, had also bought Dynix. The Marquis product was renamed Horizon, which had been a name NOTIS was using with its development. When Ameritech (circa 2000) spun off the library division the company was renamed epixtech – a truly unpronounceable name. The company soon returned to one of its original names, Dynix (Breeding).

The SIRSI ILS was founded in 1979. The developers had done some work at Georgia Tech library while they were there. SIRSI did well financially and established a customer base. In 2001, SIRSI purchased Data Research Associates (DRA) which had been trying to develop an objected-oriented programming library system. Although there were initially no plans to consolidate systems, that is indeed what happened. DRA's new object oriented product could not be developed enough to make it viable and their customer base was subsumed. In 2005, Sirsi purchased Dynix and became SirsiDynix (Breeding; SirsiDynix) and the newly combined company is now merging the products.

Polaris has gone through several organizational structures, but began in 1974 as Gaylord Library Systems when it introduced its first circulation system. In the 1980s, the Galaxy system was introduced and was an immediate success with libraries looking for an easy-to-use, turnkey solution to library automation. In February 1997, the company announced plans to develop the Polaris Integrated Library System, a state-of-the-art, third generation client/server system, primarily in public libraries (Gaylord).

While ILS systems have, debatably, gotten better about providing access to libraries' book holdings, they have done little to improve access to the vast content found in periodical literature. One of the keys to accessing journal literature has been and continues to be the various indexes to the resources. Many students and researchers are familiar with the products from the H. W. Wilson Company, such as Reader's Guide to Periodical Literature which was established in 1901. Wilson produced a number of other similar print indexes for subject specific areas. The challenges these print sources presented is that one had to search a series of successive volumes to look through all the literature, very similar to the National Union Catalog. One could also only look for a single subject term at a time. Once the researcher found a possibly relevant title, the user's library catalog had to be searched for the journal and volume, the needed volume had to be pulled, and the specific article read to determine if it was truly relevant. Not a very efficient process (H.W. Wilson Company).

Flash forward some 100 years and these indexes are available over the Internet. In this technologically advanced search, the user can search by multiple terms at a single time through the use of Boolean terms to quickly refine the search with very tight parameters. One can also search multiple databases, such as the Wilson databases simultaneously with only a minimal degradation in response time. Once one finds a citation to the needed article, an open link-resolver will take the user to a copy of the article, assuming the library subscribes to that title. An open link resolver is a product that uses standards to locate a copy of the resource within a library's print and electronic collections. All of this is conducted in a matter of seconds and the researcher never has to leave his or her desk in the home, office, dorm room, or get up out of his or her chair in the library. If the journal is electronic and the user's library has a subscription, the user can even see the desired article from where s/he sits. If it is a paper subscription, s/he may

still have to go and get it. Wilson is but one example of a vendor that provides this access; there are hundreds of database vendors, many of whose products are sold through aggregators (discussed later) such as EBSCO (H.W. Wilson Company).

Two companies were among the early leaders in database creation, predating the Internet by many years: Dialog and BRS. The Lockheed Corporation was the first to create a product, known as DIALOG, which would enable the management of large data files. Lockheed soon recognized the commercial viability of this product and it became publicly available in 1972. This author worked in the Atlanta area, near where Lockheed was headquartered, and was fortunate to see this project in its early days (Bjorner & Ardito, 2004; *Company background - dialog history movie transcript).*

In 1968 a database company known as BRS – Bibliographic Retrieval Services, started a pilot project to create an automated search and retrieval system using large computers and an IBM product known as STAIRS (Storage and Information Retrieval System) to work with medical information. By 1976 this BRS medical product was commercially available along with twenty additional databases. The initial database product is now known as MEDLINE, probably the leading medical database (Bjorner & Ardito, 2004; Burrows & Kyle, 1979).

These resources were quite expensive; often costing anywhere from $50 to $200 an hour or more for connect time. People typically connected via a dial-up telephone at 300 bps, an extremely slow rate compared to our connection speeds today. Due to the costs, many places employed professional on-line searchers or librarians who would first spend time developing a well constructed search strategy, then go online, quickly conduct a search, and then log-off.

Databases started to be marketed on CD-ROMS and libraries bought them, but since libraries often have multiple branches, they needed to be able to network those resources

effectively sharing them across their branches. Libraries also needed to make sure the CD itself did not get stolen or damaged. In the early 1990s, companies began working on products to address those needs. One company, Interface Electronics, created a series of towers to enable the networking of CD-ROMs; the largest was so big it was affectionately known as a "refrigerator." Interface Electronics is still in business selling products to libraries, but they no longer work with CD-ROM towers because that technology has submerged (*Interface electronics – products;* McCallum, 2003;).

The problem with CD-ROMS is that they really are for a single user, only one person could do a search at a time, even when the CD is in a networked environment. Libraries needed to allow multiple people to use the products simultaneously, so networked CDs were still not the best solution. NOTIS created a product known as MDAS (Multiple Database Access System) that allowed sites to mount a database on their IBM mainframe and make it searchable though the library catalog. They also created a product to run on smaller, less expensive, computers with much the same functionality. This product was known as InfoShare. The big problem here was the huge cost of disk space storage which could cost thousands of dollars per megabyte. Networked CDs and locally mounted databases have mostly gone away in an age of resources available on the Web (NOTIS expands database offering through alliance with silver.1994; Steffey, 1990).

Once a user has a list of articles s/he wants, s/he still needs access to the actual journal article. Libraries can subscribe to thousands or tens of thousands of journals and buy many thousands of books in an individual year. It would be nearly impossible for a library to purchase each of the titles individually from all the multiple companies that produce them. For that reason, libraries make use of aggregators that will acquire the multiple titles they need, giving

the library a single point of contact for purchasing and billing for thousands of journals or books titles. Since these aggregators work with many libraries and publishers they become very efficient at this ordering process and can often get good price discounts.

One of the leading information aggregators today is EBSCO (Elton B. Stevens COmpany in Birmingham, Alabama). This company got its start when its founder, Elton B. Stephens, sold magazine subscriptions in 1930 to fund his college education. By 1944, Stevens had founded a company to sell magazine subscriptions and by 1963 the company was offering its services to libraries. In the mid 1980s EBSCO began developing electronic products to improve their services and by the mid 1990s it was offering databases. While EBSCO continues to grow, a similar competing company, known as the Faxon Company, failed in 2003, due to a series of bad management decisions. This failure had a huge financial impact on Faxon's customers (S. Davis, 2003; EBSCO, Inc).

As the Internet became more widely used, products were created to facilitate the searching and retrieval of resources. This was before the World Wide Web was available. One of those protocols, Gopher, was created at the University of Minnesota. It came into play in the 1980s along with its companion products Archie and Veronica. With the beginnings of the hypertext transfer protocol (http) in the early to mid 1990s, the base for searching on the web was born along with products such as Mosaic – the first web browser, and then later Netscape, Internet Explorer, and others. Then came the mega search engines such as Google and Yahoo, and resources such as Wikipedia (McCallum, 2003; Polly & Cisler, 1994; Seiden & Nuckolls, 1994; Swann & Rosenquist-Buhler, 1995).

Companies such as Wilson and EBSCO were able to take advantage of the Internet and offer their vast array of databases over the World Wide Web. Libraries no longer had to store

and index large amounts of data locally. Now in a high speed Internet world, these databases are provided as a hosted service by these large commercial vendors and aggregators.

Libraries have historically provided the print versions of journals in their collections, and they are now doing the same with the electronic journals. Electronic journals (e-journals) have provided a major shift in the way researchers make use of literature. In the early days of the Internet and the World Wide Web there were snippets of information and websites available. However, as e-journals became increasingly prevalent, either for free or as licensed content, they led the way to a huge explosion of information. Stephen Abrams, Vice President for Innovation, SirsiDynix, has stated that the way access to information is occurring has shifted 180 degrees. Twenty years ago, information was scarce and time was plentiful; and he goes on to state that now information is plentiful in this world of the web and the Internet, but time is scarce.

Although e-journals were first piloted in the 1980s they really did not take off until the 1990s. Some of the early limitations in the web were the inability to transfer clear images, the need for proprietary software, and the time it took to prepare materials for web publishing. Now scholarly journals are often electronic and some researchers are predicting that by the end of this next decade, a scholarly journal in paper will be a rarity. There are cost savings for publishers and libraries alike for the e-journal environment. Publishers might see cost reduction in the area of 25% for the printing and distribution, although this could be offset by the cost of servers and telecommunications. This is in part why many publishers depend on an aggregator who can offer a journal hosting service much more cheaply than the publisher, due to economies of scale and the skills of their devoted staff. Libraries can also save costs with reduced handling of the paper and by decreasing the need for shelving items in what one Arizona State University

computer technology administrator provocatively calls libraries, air conditioning for books (Kaur, 2007; Odlyzko, 1999).

Electronic repositories and scanning projects such as Project Muse (http://muse.jhu.edu/ ) and JTSOR (http://www.jstor.org/?cookieSet=1) have developed as centers for converting older materials to electronic format and as digital archive to insure the data in these journals will persist for decades to come for future researchers. Open source journals, those that are essentially provided free to anyone, are also part of the equation.

This electronic environment has created a market for pay per view articles, where users pay with a credit card to see the desired content. This has also led to the situation where some people are paying for content that is already available to them, at no cost, in their local library. Interlibrary loan has seen a similar transition for articles and instead of photocopying a journal request and mailing it to the requesting libraries, most libraries now scan the requested article and send it electronically.

Libraries are now focusing on a number of new technologies. The world of Google-like searching has exposed the limitations of our online catalogs. People now expect to get everything they need in terms of information instantaneously, and at the same time, they do not always know about the rich content that many libraries own because it is not easily discovered in a web search. Libraries and vendors are looking for strategies to offer more electronic content in an easy to use web based environment. This involves both improving access and making more content available in a digital format. The digitization of some content makes it available more widely since any authorized user can then see it on-line rather than on site, and this ability supports our historic role in sharing. Libraries are truly moving into an era of increasingly digitally delivered services, collections, and access, and they are creating more web-based

products and services and developing a more meaningful electronic presence. Finally, libraries are recognizing that their younger users are gadget savvy and prefer to use mobile devices. The trends mentioned here lead to some of the projects and case studies presented. There are many more trends and directions, but once again, the scope of covering everything would represent years of research and a voluminous report. It is also a moving target because the technology is constantly changing. In the section that follows are case studies from libraries that have implemented a project, along with an explanation of the relevance and importance of this product and/or technology. Before the actual case studies are presented, these next few paragraphs will provide some context for the importance of the role of these technologies. In some I will cite scholarly literature and resources on the product. However, because some are new, nothing has been made available through literature (Fox).

The first examples in the case studies concern one of the work-horses of the library – the OPAC (Online Public Access Catalog). Many librarians and users find the OPAC, perhaps loosely thought of as an online card catalog, to be good for some things, but also very lacking. In the world of Google-like searching these shortcomings are increasingly evident. The OPAC is good for searching for a known item, e.g. a book by a specific title, and it is good for showing where things are located. Situations it does not handle well include identifying an item when one doesn't know specifically what is needed; looking for items other than books – e.g. journals, articles, digital resources, etc.; providing relevance ranking- ranking by importance to searchers to help them screen and prioritize results; or the ability to search on a tangent – expand the search results in a variety of directions in a serendipitous manner; and there are other limitations. The MARC record which is the underpinning of most catalogs was really designed for backroom functions and as a telecommunication standard, but it is now being forced into service in new

ways, ways in which it may not be the best tool. The OPACs often leave our users without any useful information. As a result of this, many libraries are investing their efforts in way that can improve the catalog. Several of the case studies detail some examples of how libraries are making changes (Breeding, 2008; Lyrasis; Parry; Weinheimer, 2009).

This research looks at three different implementations of Endeca. Endeca, in its simplest terms, is an indexing system that offers more options for any given search to help the users refine their search to a greater degree, and to offer a more comprehensive search. Unlike some similar products, Endeca allows for extensive local customization and is locally managed. More details about Endeca appear in the North Carolina State University case study. The first site is North Carolina State University, the first library to use Endeca. The second site is Phoenix Public Library, the first public library to use the product. The third site is the first Canadian library to use Endeca, McMaster University. It is the only non-U.S. library in my study (Antelman, Lynema, & Pace, 2006; Caldbeck, 2006; Collins, Samples, Pennell, & Goldsmith, 2007; Endeca; Scott, 2007). While some of the products allow the user to search independently of the product, Endeca is not a stand-alone product; it instead mounts over the entire library website and the OPAC to provide a much richer search results. Because of this it is not possible to use Endeca in a transparent way.

One effort created at allowing users to customize how their data is managed and sent to them, using librarian suggestions, is a product called MyLibrary. Initially created at North Carolina State University at a time when "My" services were very popular e.g. MyYahoo, My Netscape, it was rewritten substantially when its creator moved to Notre Dame University and completely redesigned the product for a new site installation. This case speaks to the Notre Dame installation (MyLibrary digital library framework and toolbox revamped,

demonstrated.2007; Fox; E. L. Morgan, 2008a; E. L. Morgan, 2008b). See http://mylibrary.library.nd.edu/ for more information.

The next project is Blacklight, an open-source catalog at the University of Virginia. Open source software is a product that is freely available and can have a wide range of decentralized developers (Muir, 2005). This project replaces the existing OPAC providing many more features that make it easier to search and find resources (AI3, 2008; Sadler, 2009). To see more about Blacklight go to http://www.lib.virginia.edu/digital/resndev/blacklight.html or http://blacklight.betech.virginia.edu/.

A fourth OPAC related product is EasyBorrow from Brown University that checks to see if the library already owns the item in question and then speeds the process an inter-loaned copy (Brown University Library). It is based on OCLC and represents another form of resource sharing by OCLC. It does this by automatically searching the partner libraries in a local consortium, and automatically requesting it, thereby speeding the interlibrary loan process. For more information see http://dl.lib.brown.edu/its/software/easyborrow/.

Many students today exist in a multimedia environment of YouTube or FaceBook. Video is very much a part of how these students learn and interact (Abrams). Academic libraries and universities often have a wealth of media collections that are used to supplement classroom instruction. Delivery of this typically follows that of a book, it has to be checked out, viewed, and returned. Only one user at a time can view it, unless the students get in a room together. But newer models of delivery in the commercial sector incorporate downloadable or streaming technologies. Two libraries have implemented strategies for offering streaming media. Georgetown University used commercial software from ShareStream and branded their service under the name MediaPilot (Association of Research Libraries, 2009). Pace University took a

different approach and created an original software product which they named Media Patch (Metropolitan New York Library Council). There was not any bibliographic literature on either of these services, only announcements and local information. For more information on ShareStream see (http://www.sharestream.com/), and (https://mediapilot.georgetown.edu/sharestream2gui/mainPage.do;jsessionid=50D6AF89A2FE50685B88DB3BF7A08AC9). For more information on Media Patch see (www.pace.edu/emplibrary/Media%20Patch%20Bay%20-Apuzzo.ppt).

Most astute people notice how tied students are to their phones. Libraries are increasingly looking to making resources available on portable devices. Dartmouth has created a cell phone tour, somewhat resembling the tours one gets on a headset in a museum. Unfortunately, due to severe budget cuts, this service was targeted for elimination (Fox; Guide by Cell; Kim).

The last section deals with one of the most controversial services. Most public libraries offer some form of gaming and in fact, early November 2009 celebrated "National Gaming Day at Your Local Library." Some people feel that gaming is well outside the libraries' mission of providing books, journals, and research. Others might say that the library is already providing entertainment by offering leisure reading or perhaps movies and music CDs. Eli Neiburger who manages the gaming tournaments at the Ann Arbor District Library (AADL), a public library in Michigan, states that computer gaming is just a noisy version of children's story time, with a slightly different audience. Some librarians and citizens might argue that the library is a lot about community and the library is a place where community members come together, even if it involves gaming. Studies show that games involve problem-solving and social-interaction skills. In some cases, libraries state that on the days when they have gaming, circulation goes up;

people are already in the library and find a book they might wish to read or a DVD to check-out. Studies also show that 75% of those who come to the library for the gaming end up checking out items from the library. Computer gaming can be a strategy to introduce technology to many groups, including seniors – gaming is not just for kids. Some libraries use it for training, since there is some evidence to suggest that students learn more in a gaming environment. So this gaming becomes an outreach tool for new and existing library users. AADL has embraced gaming in a big way and holds regular tournaments. Their technology issue was the creation of software to help in the management of those tournaments (American Library Association; American Library Association; Danforth, 2009; Entertainment Software Association, 2008; Levine; Levine; Levine; McClean, 2006; Myers, 2008; Nicholson, 2008; *Vox pop: Quiet in the library? shhh!* ).

In some of the case studies that follow, I chose to use large sections of data, verbatim, from a website or from the respondents' survey answer. The verbatim text which appears in the Case Studies section is italicized and includes a link to the website, where applicable. Since this was really supplementary data, providing fuller details about the site or response, I saw little value in trying to paraphrase information that was already carefully worded.

# NORTH CAROLINA STATE UNIVERSITY

## ENDECA

*With more than 31,000 students and nearly 8,000 faculty and staff, North Carolina State University is a comprehensive university known for its leadership in education and research, and globally recognized for its science, technology, engineering and mathematics leadership. At NC State, we produce more than graduates—we combine the theoretical with the practical to create innovators and leaders of tomorrow. NC State is the largest university in North Carolina. It is also a global center of learning for some of the most important emerging technologies and new sciences now shaping the future of our world – including nanotechnology, biotechnology, biomedical engineering and computer science. Our expertise in these groundbreaking areas is backed by historic strengths in agriculture, engineering, forestry, wood and paper science, textiles, veterinary medicine and design. We also provide a high-quality education in the humanities and social sciences, education, life sciences, management, mathematics, natural resources and all the physical sciences. The breadth of our academic excellence is reflected in the strength of the NC State University library system, which includes 3.5 million volumes across five libraries and an annual budget of over $20 million.*

http://www.ncsu.edu/about-nc-state/index.php

http://www.ncsu.edu/academics/index.php

| | |
|---|---|
| Size of community | Students - 31,000<br>Faculty – 2,000<br>Staff – 6,000 |
| Size of library staff | 270 |
| Size of library systems department | 17 (16.5 FTE) |
| Size of University IT staff | Approx 500 |

This is a big systems department in the libraries. North Carolina State University has a history of working with key technologies to improve library services. North Carolina State University is one of three sites I studied that implemented Endeca. North Carolina State was the first library anywhere to make use of the Endeca product.

*Endeca for Libraries is the most effective way for students, faculty and other members of the library community to find the book or resource they need and to discover new information they didn't even know the library owned. That's why North Carolina State University saw an increase of 240% in keyword searching after deploying Endeca. Endeca's superior search integrated with the patented Guided Summarization experience encourages exploration and discovery. That experience increases usage of the library's resources, increases re-circulation, and increases usage of legacy library collections.*

*Endeca for Libraries customers range from national institutions like the Library of Congress, and university libraries like North Carolina State University and McMaster University, to public libraries like the Phoenix Public Library. Despite the diversity of their reach and content, these organizations have seen dramatic improvements in their online catalogs, such as increased usage, increased re-circulation, and greater customer satisfaction and loyalty.*

http://www.endeca.com/

http://www.endeca.com/corporate-info/press-room/pr/pr_2006-01-13.html

http://www.endeca.com/byIndustry/media/libraries.html

Library catalogs have a reputation among students for being difficult to navigate in order to find the needed information and a difficult database in which to perform a basic search - unlike web search engines such as Google or Yahoo. Given students' dissatisfaction, the North Carolina State Libraries wanted to improve the functions of the OPAC.

How does a library become the first to implement a product that previously has not been used in that market? The Head of the Systems department in the North Carolina State University (NCSU) Libraries had heard about Endeca from one of the library ILS vendors. He made contact with Endeca for an article he was writing, and was impressed enough to pursue trying to implement their product. Two people from the libraries went to visit Endeca to discuss possible solutions. Endeca staff demonstrated interest in and knowledge of the libraries' catalog database. Once these two staff were satisfied that this product could help, the library representatives made a business case to the libraries' senior administrators and once approved, NCSU began contract negotiations. A project team was put together to work on data mapping and migration, user interfaces, interface design and usability testing. When the product was demonstrated to library staff through a series of open sessions, there was overwhelming support. The NCSU Libraries went live with the product one year from their meeting with Endeca staff.

North Carolina State University libraries consider their users very strong in their acceptance of technology. NCSU libraries have never found any student resistance to the technologies offered through the libraries. Like many sites, the libraries found the level of service offered by the standard OPAC to be so untenable that almost anything would have been an improvement. As soon as the Endeca product was implemented, the libraries replaced their

previous OPAC with it. While the libraries did a fairly quick implementation, they continue to further develop this product. The most significant hurdle the libraries faced with their implementation was not a technical one, but was instead the licensing process of Endeca at their own site. Endeca has greatly increased their users' ability to discover resources in the NCSU libraries. Their users very much liked the product and now, as of March 2008, the Triangle Research Libraries, of which North Carolina State is a member; use Endeca to provide a union-catalog.

This project was entirely library driven with no assistance from the University Information Technology department. The campus IT department primarily provides networking, the software image for public workstations, site licensed software, email and calendaring, etc. The libraries do not consider their university IT department to be of much use in implementing cutting edge technology.

# PHOENIX PUBLIC LIBRARY

## ENDECA

Phoenix recently became the fifth largest city in the United States, bypassing Philadelphia. Unlike many older cities, much of the growth in Phoenix came as part of the post World War II suburban migration era, so this city comprising 517 square miles is very spread out and has a much less dense urban core than do many other cities. The metropolitan area has a population of 4.5 million composed of more than a dozen suburban cities surrounding Phoenix. The Phoenix Public Library (PPL) is over 100 years old, having starting as an old Carnegie library (still extant but not part of PPL), with 16 branches (*Massachusetts library association conference reports: Endeca, developments in the OPAC world* ).

| | |
|---|---|
| Size of community | 1,554,538 Phoenix<br>4.5 million metro |
| Size of library staff | 98 librarians<br>552 support staff |
| Size of library systems department | 15 |
| Size of city IT staff | 193 FTE |

Note: due to the downturn in the economy the Library and city have lost many positions since this survey was conducted.

While Phoenix Public Library staff regularly interact with the City's IT department, the City of Phoenix IT is decentralized. Most departments have their own separate IT operation ranging from 5 persons or less, to 30+ FTE. The Library participates on all levels of general IT meetings held for all departments and depends on the parent organization for IT standards, IT

budget, all data and telecommunications line procurements, contracts, maintenance and Internet access. Although the city has hired a new CIO who may bring some changes, the city IT department has historically been fairly conservative and was not involved in this project.

In 2002, the Library created a vision of the customer Web experience at the Phoenix Public Library. That translated into a 2003 redesign of the website incorporating a strong retail design and philosophy introducing promotional content and "my account" features. It also began to offer limited integration between the OPAC, "my account," programming, electronic resources, and library related information. The Library was keeping an eye on the marketplace for a product that would take the website to the next level and expose the full richness of the catalog data, fully integrate the catalog with information resources and library services, offer full web services functionality, and follow a retail design approach. PPL wanted to focus on a retail model using Amazon, Barnes & Noble, Chapters (Canada's B&N/Borders) Home Depot, and other highly sophisticated retail websites as examples. This was an idea in search of the technology to help deliver the vision. The project was determined to be high priority by the Library's management.

In the summer of 2005, the Library conducted a staff review of two products that had recently come into the Library marketplace and that had the potential of taking the library website to the next level. The two products were Aqua Browser and Endeca. Aqua Browser was actively marketed to libraries by book dealer and aggregator, Bowker, and PPL had heard about the North Carolina State University experience with Endeca. Endeca was found to be the better product for PPL as it enabled the Library to totally control the customer experience without second party intervention. Aqua Browser, which is a hosted service, offered less flexibility and less local control. Endeca has a search engine, it can harvest data, and it makes use of business

models, e.g. use of credit cards to pay fines and bills – which is important to many public libraries these days. It makes use of application programming interfaces (APIs) allowing for guided navigation. PPL has now integrated it with its OPAC bibliographic data and also library data that is not part of the library catalog. The project began with Endeca training in fall 2005, the site specification plan was completed in November 2005, and the project kickoff was in January 2006. In January 2007, the site went live in test mode as a link from the website in use at the time, and was officially launched in late March 2007.

PPL considers its users to be comfortable with technology. Librarians feel this is due in part to the presence of high tech industries, a large Gen X and Gen Y population, and proximity to several postsecondary colleges and universities. Their users seem to quickly adapt to changes, new technologies, and enhancements with few problems and with little dissatisfaction expressed. Three months after the launch of Endeca, a satisfaction survey was conducted. The responses varied depending on the service, with a 92% satisfaction rate on the overall website.

Although the project is now in maintenance mode, the library is continuously looking for ways to improve it and offer new services. Library staff went through a series of iterations in preparation for their launch. The first was extensive testing by staff. The libraries then began testing it with the public until the PPL was satisfied with the results. After each iteration, the library took the feedback garnered and used it to enhance and improve the product.

When asked if the libraries would do this again, the answer was “Absolutely.” It addressed the library’s needs in a comprehensive manner and provided several desired services to its users. As a result the PPL was awarded the 2008 Outstanding Achievement in Local Government Innovation Award from the Alliance for Innovation. Within the first three months of implementing Endeca, web traffic increased 27% and circulation increased 15%.

# MCMASTER UNIVERSITY

## ENDECA

*Historically, McMaster University is the outgrowth of educational work initiated by Baptists in central Canada as early as the 1830's. Named after Senator William McMaster (1811-1887), who bequeathed substantial funds to endow "a Christian school of learning", the University was incorporated under the terms of an act of the Legislative Assembly of Ontario in 1887. The new University (housed in McMaster Hall in Toronto) offered courses in arts and theology. Degree programs began in 1890, with degrees first being conferred in 1894.*

*In 1930 the University moved from Toronto to Hamilton, the forty-first academic session opening on the present site. The University's lands and new buildings were secured through gifts from graduates, members of the churches of the Baptist Convention of Ontario and Quebec, and citizens of Hamilton.*

*Until 1957, the Governors of the University were elected by the Baptist Convention of Ontario and Quebec. In that year, the University became a non-denomination al private institution. The historic Baptist connection was continued through the separate incorporation and affiliation of a theological school, McMaster Divinity College.*

*By the McMaster Act of 1968-69, McMaster Divinity College continued under its existing arrangement, but the rest of the University was organized into the Divisions of Arts, Science, and Health Sciences each headed by a vice-president (academic).*

*In 1974 the divisional structure of the University was dissolved and the vice-presidents replaced by a single Vice-President (Academic), now called Provost and Vice-President (Academic). The Faculties of Business, Engineering, Health Sciences, Humanities, Science, and Social Sciences were retained, each under the leadership of a dean.*

*The University corporation consists of up to thirty-seven governors. Academic work is under the direction of the University Senate, which is made up of representatives of the teaching and administrative staff, Governors, student body, and Alumni. The University is financed by means of endowment income, gifts, fees, and annual grants from the City of Hamilton, the Hamilton-Wentworth Region, The Province of Ontario, and the Government of Canada.*

http://www.mcmaster.ca/univsec/univsec09/history.cfm

*Hamilton is the fourth largest city in Ontario and the ninth largest in Canada. It is ranked as one of the top 10 places to do business in Canada. McMaster University is the fifth largest employer in the Greater Hamilton area (City of Hamilton), with more than 7,500 employees (May 2008) McMaster's operating costs benefit economic growth in the community, through the use of local businesses and suppliers. More than 60 per cent of McMaster's 19,500 full-time students come from outside the City of Hamilton and bring increased revenue to Hamilton area businesses through consumer spending (November 2006) McMaster University is*

*the major knowledge generator in the Hamilton region, providing both the human capital and the research output necessary to fuel the region's economy.*

*-from the respondent survey*

| | |
|---|---|
| Size of community | 20,400 full-time undergraduate students<br>2,809 full-time graduate students<br>7500 employees<br>894 fulltime instructional faculty<br>500,000 Hamilton, ONT |
| Size of library staff | 130 |
| Size of library systems department | 12 |
| Size of University IT staff | 250 FTE |

Based on the reported success of North Carolina State University's Endeca implementation, McMaster University Library became the first library in Canada to choose Endeca as the discovery layer for its catalog. The campus IT department was not involved in the Endeca implementation, a project that was entirely conceived and carried out by the library. The campus IT department primarily provides networking (including wireless) and security (including antivirus). Although a new CIO has recently been hired, the department has historically been conservative in terms of innovation.

This project had the personal attention of the library director, who has a keen interest in technologies and new services. This library, too, had a goal to improve access to the library resources, recognizing the short-falls of the library catalog. McMaster had a very quick implementation, only three months. During that time, a pilot was conducted and feedback from users was solicited and received. More details on the McMaster implementation of Endeca can be found at: http://ulatmac.wordpress.com/2007/03/25/mcmaster-launches-endeca-interface/

This was a team approach and the library continues to add new services and resources, such as links to Amazon. Since implementation, the feedback has been overwhelmingly positive, stating that it looks great and is easy to use. McMaster students are generally receptive to new technologies. McMaster continues to modify its implementation of Endeca, although it is now fully available to its uses. Since McMaster University Libraries' successful implementation, the University of Toronto and the University of Ottawa have also selected Endeca and this wider adoption may, in fact, become a sort of union catalog for Ontario.

# UNIVERSITY OF NOTRE DAME

# MYLIBRARY

*The University of Notre Dame, founded in 1842 by Rev. Edward F. Sorin, C.S.C., of the Congregation of Holy Cross, is an independent, national Catholic university located in Notre Dame, Ind., adjacent to the city of South Bend and approximately 90 miles east of Chicago.*

*Admission to the University is highly competitive, with five applicants for each freshman class position. Seventy–one percent of incoming freshmen were in the top five percent of their high school graduating classes.*

*The University's minority student population has nearly tripled in the past 20 years, and women, first admitted to undergraduate studies at Notre Dame in 1972, now account for 47 percent of undergraduate and overall enrollment.*

*The University is organized into four colleges—Arts and Letters, Science, Engineering, and the Mendoza College of Business—the School of Architecture, the Law School, the Graduate School, six major research institutes, more than 40 centers and special programs, and the University library system.*

*One indicator of the quality of Notre Dame's undergraduate programs is the success of its students in postbaccalaureate studies. The medical school acceptance rate of the University's preprofessional studies graduates is 80 percent, almost twice the national average, and Notre*

*Dame ranks first among Catholic universities in the number of doctorates earned by its undergraduate alumni—a record compiled over some 85 years.*

*The Graduate School, established in 1918, encompasses 32 master's and 25 doctoral degree programs in and among 26 University departments and institutes.*

*The source of the University's academic strength is its faculty, which since 1988 has seen the addition of some 500 members and the establishment of more than 150 new endowed professorships. Notre Dame faculty members have won 37 fellowships from the National Endowment for the Humanities in the past nine years, more than for any other university in the nation.*

*At Notre Dame, education has always been linked to values, among them living in community and volunteering in community service. Residence hall life, shared by four of five undergraduates, is both the hallmark of the Notre Dame experience and the wellspring of the University's rich tradition. A younger tradition, the University's Center for Social Concerns, serves as a catalyst for student volunteerism. About 80 percent of Notre Dame students engage in some form of voluntary community service during their years at the University, and at least 10 percent devote a year or more after graduation to service in the United States and around the world.*

*With 1,250 acres containing two lakes and 138 buildings with a total property replacement value of $2.8 billion, Notre Dame is well known for the quality of its physical plant and the beauty of its campus. The Basilica of the Sacred Heart, the 14–story Hesburgh Library with its 132–feet–high mural depicting Christ the Teacher, and the University's beautifully*

*renovated 128–year–old Main Building with its famed Golden Dome are among the most widely known university landmarks in the world.*

*The library is an ARL library with 3.5 million volumes.*

http://nd.edu/aboutnd/

| | |
|---|---|
| Size of community | Students 10,000<br>Faculty: 750<br>Staff 4250 |
| Size of library staff | 200<br>Librarians 50<br>Staff 100<br>Students 50 |
| Size of library systems department | 7* |
| Size of University IT staff | 125 |

*There are 50 people total working with computers in the library. This may make up for the small size of the library systems office.

The library and the University IT department do interact regularly and the IT department provides support for some of the hardware and other University wide services. The library's systems department does not consider the University's IT department to be very innovative. The University's IT department was not involved in this project.

This project was first completed at North Carolina State University in 1997-1998 and was then implemented at Notre Dame by the same developer. Originally created as a turn-key application, it has been redeveloped as a toolkit and digital library framework written in Perl. In both developments it was designed to allow users and librarians to develop relationships among database resources to improve the user's ability to more readily find the needed information.

The product was created so that librarians could select and suggest information resources, saving their users' time.

In its original iteration, few patrons actually made use of the product because most users did not wish to invest the effort to customize their own WebPages. In this newer iteration more of the work is done by librarians to improve how resources are provided and accessed by library users, making it more transparent to those same users. The product makes this work easier for the library and librarians to implement a database derived website and better facilitate learning, teaching, and research – all key services of a university research library. Some of the challenges have come from librarians not understanding the capabilities of computers in general and of this product in particular and what the possibilities are for the future. This product is somewhat different because it is a tool that is intended for use by librarians that enables them to provide service to the end user, so the end user does not make direct use of it.

There have been many iterations of this project since it was first used at Notre Dame and it has definitely been a team effort. It is not possible to determine the degree of the library administration's commitment to this project, but presumably, since it was a team effort, there was support there. Some of the biggest challenges have been educating the librarians on how all of this technology comes together to deliver a service to their users. While MyLibrary is up and running at the library there is constant effort to develop and enhance it. Feedback has come from librarians, peers, surveys, and usability studies, all of which have served to help shape features, design, prioritize, and implement. Notre Dame Libraries would definitely do this again.

# UNIVERSITY OF VIRGINIA LIBRARY

## BLACKLIGHT

*The University of Virginia is one of the oldest public universities in the United States. The University of Virginia is made up of twelve schools in Charlottesville, plus the College at Wise in southwest Virginia. U.Va. offers 51 bachelor's degrees in 47 fields, 84 master's degrees in 67 fields, six educational specialist degrees, two first-professional degrees (law and medicine), and 57 doctoral degrees in 55 fields.*

*The University of Virginia is distinctive among institutions of higher education. Founded by Thomas Jefferson in 1819, the university sustains the ideal of developing, through education, leaders who are well-prepared to help shape the future of the nation. The university is public, while nourished by the strong support of its alumni. It is also selective; the students who come here have been chosen because they show the exceptional promise Jefferson envisioned.*

http://www.virginia.edu/aboutuva.html

| | |
|---|---|
| Size of community | 19,500 students<br>Undergraduate 13,000<br>Graduate 4800<br>Professional 1700<br>Charlottesville 45,049<br>County 100,000 |
| Size of library staff | 230 |
| Size of library systems department | 10 |
| Size of IT University staff | Not supplied |

The library does not consider the University's Information Technology Office which provides the campus network to be innovative.

Developed as a product that overlays on top of their SIRSI OPAC, locally known as VIRGO, Blacklight provides serendipity to the search and provides a means to narrow the search by format, collection, individual library, time period, etc. It also integrates their digital holdings into the library catalog. One aspect that is often missing from most library OPACS is the ability to virtually browse the collections. Some library users feel that browsing the stacks leads to important serendipitous finds. The lack of relevance ranking in their current catalog has also frustrated their users. Users get relevance rankings in Internet browsers, but not so much in a library OPAC. The users also point out that their library's local digital objects are not accessible in the library OPAC and those objects comprise some important unique resources. The library could not identify any commercial product that addressed the problems they wished to solve, so the libraries decided to develop it themselves using open source software.

Blacklight uses Solr to index and search, and it has a highly configurable front-end. Currently, Blacklight can index, search, and provide faceted browsing for MARC records and several kinds of XML documents, including text encoding initiative, encoded archival design, and global database management systems TEI, EAD, and GDMS. Blacklight was originally developed at the University of Virginia Library and is made public under an Apache 2.0 license. As of version 2.0 (released March 28, 2009), Blacklight is distributed as an engine plug-in inside of a demo application. This should allow institutions to keep their local institutional edits separate from the core plug-in functionality, enabling easy upgrades with future releases. http://blacklight.rubyforge.org/

This particular product became the focus of one person's energies. She became something of an evangelist pushing for the exploration and implementation and she quickly garnered additional support. This is another case in which the project was entirely library driven without any input from the University Information Technology Department, nor has the Library systems office been very involved. However, as this product moves into a production mode and replaces the current OPAC interface, those departments will be much more involved. The University of Virginia libraries will continue to determine ways to improve this tool. Most of the efforts on this tool have come from one person in the Digital Services office, and her efforts and knowledge of such indexing tools – lucene and solr.

The University of Virginia Libraries consider people in their community reluctant to embrace new technologies, primarily because these users have been disappointed with services that previously did not meet their expectations. To counteract this, library staff have focused on what Blacklight can do now, and not on future possibilities. This should be a good solid strategy. Since this product has addressed some of the long standing problems, the feedback has been quite positive once users actually try using it. Blacklight makes it easier for library users to find items in the library's collections. It has helped make portions of their collections accessible that were not searchable in the past. The library staff morale has improved because users offer more positive feedback, instead of complaints. Feedback was solicited while working with users, from usability testing, and from a feedback button on the tool itself.

This example points to the role of a knowledgeable evangelist who gets an idea, and pursues it and ultimately is successful. This implementation also illustrates a case where the library administration was not supportive at first, but eventually changed its collective mind, showing that even when something is not a priority initially, it may become one later.

# BROWN UNIVERSITY

# EASYBORROW

*Founded in 1764 as the College of Rhode Island in Warren, Rhode Island, Brown University was the Baptist answer to Congregationalist Yale and Harvard, Presbyterian Princeton, and Episcopalian Penn and Columbia. At the time, it was the only one that welcomed students of all religious persuasions (following the example of Roger Williams, who founded Rhode Island in 1636 on the same principle). Brown has long since shed its Baptist affiliation, but remains dedicated to diversity and intellectual freedom. It moved in 1770 to its present location on College Hill, overlooking the city of Providence.*

*Brown is a University-College made up of three schools: Undergraduate College, Graduate School, and Medical School. Brown students represent all 50 states and many foreign countries. For 2010, more than 18,000 applicants applied for 1,450 places in the freshman class. All undergraduates were admitted under a need-blind admission policy.*

*Brown's three schools offer nearly 100 programs of study. The University adheres to a collaborative university-college model in which faculty are as committed to teaching as they are to research, embracing a curriculum that requires students to be architects of their education. The current student to faculty ratio stands at 9 to 1. Through the Plan for Academic Enrichment, the University is in the process of hiring 100 new faculty members. Brown's campus is composed of 238 buildings and sits on 143 acres in Providence, the capital of Rhode Island. The University*

*library system contains more than 6,000,000 items, including bound volumes, periodicals, maps, sheet music and manuscripts.*

http://www.brown.edu/web/about/history

| | |
|---|---|
| Size of community | 8,025<br>Undergraduate 5,821<br>Graduate 1,834<br>Medical 370<br>Faculty 745<br>Staff 1,149<br>Providence pop. 172,459 |
| Size of library staff | 158 |
| Size of library systems department | 17 |
| Size of IT University staff | 168 |

This seems to be a larger sized systems staff within the libraries than in some of the other libraries. While the Libraries do not consider the University Information Technology Department to be innovative, the two groups do meet regularly for planning purposes. The University IT department provides basic systems administration and UNIX server administration for the library.

Most libraries face challenges in helping their users locate needed materials. Library users are often confused or are unaware of the variety of resources available from their University Library. Users may search one database and not find what they need and are totally unaware that the resources they need may be readily available from another source. The Brown University Library is a member of several consortia that readily loan materials to one another. These partnerships greatly increase the number of materials available. easyBorrow makes it much easier to request books from other libraries without having to search and enter data multiple times. When a page is returned following a search that indicates that no results were found in the Brown library, a simple box is offered allowing a search of additional resources and greatly

reducing the number of clicks required. easyBorrow readily searches other proprietary systems, freeing the user from dealing with multiple different systems to locate materials. It also speeds the process making it more efficient and less costly. This simplified process addresses the desire of many users today of just getting them what they need/want and not making them spend time searching for it.

A new University Librarian established this as a high priority because she heard frequent complaints about the difficulty of navigating these multiple services and wanted a solution. She kept track of this priority by meeting with the team on a regular basis to hear progress reports and provided support the team needed.

The library determined that there was really not any product on the market that would tie together the different proprietary systems. This project provided them with an opportunity to use service-oriented-architecture principles. This was a team project requiring the functional expertise of their ILS and resource sharing managers and programmers skilled in java, php, mysql, and django. easyBorrow is locally developed and uses WorldCat, from OCLC, as its base. The library went live with a beta version in June 2007. At that time only three of the four services had been tied in, the fourth was added in September 2007. easyBorrow is now in maintenance mode with a list of enhancement requests.

To gain input in to the project the library did a user satisfaction survey. The results were very positive. In the results of their survey 92% of users said it was easy to use and 93% had a good to excellent experience. Comments included:

"Absolutely terrific!" - Visiting Scholar

"It's a god-send because often the books I need are missing or checked out! It's quick enough too." - Grad Student

"It was easy to find the titles I wanted, and I received my book very promptly-sooner than I had expected! I was surprised and very pleased with this service."

- Undergrad

"It is almost TOO easy…" - Brown Faculty

Beyond the favorable comments which could be somewhat anecdotal, usage statistics for all aspects of the service are tracked in a MySQL database and there was a 40% increase in Fall 2008 from Fall 2007 usage. As a result of the feedback the library added the ability for users to track their easyBorrow requests from their library account. The library would definitely do this again today, stating that easyBorrow is a great service for their users.

The Brown University Library case study shows a product that was established as a priority by the University librarian. It was totally library driven without any input from the University Information Technology department. Brown indicates that it was a challenge to integrate the multiple proprietary systems into a single service and the libraries could not have accomplished this implementation without their own programming staff.

# GEORGETOWN UNIVERSITY

## SHARESTREAM

*Founded in 1789, the same year the U.S. Constitution took effect, Georgetown is the nation's oldest Catholic university. What began as Georgetown College, a small gathering of 12 students and a handful of professors, has grown into a major international university that includes four undergraduate schools, respected graduate programs, a law school and a medical school. The vision of Georgetown founder John Carroll, S.J., still guides the university in its commitment to Catholic, Jesuit education in the liberal arts tradition, with respect for diversity and open dialogue in the pursuit of truth. . Today, Georgetown is a major international research university that embodies its founding principles in the diversity of our students, faculty, and staff, our commitment to justice and the common good, our intellectual openness, and our international character. Georgetown University comprises four undergraduate schools, three graduate and professional schools, professional development programs and certificates, medical residencies and other programs predicated on the liberal arts tradition at the heart of the institution.*

http://explore.georgetown.edu/documents/?DocumentID=742

http://www.georgetown.edu/learning.html

| | |
|---|---|
| Size of community | Students 14,148<br>Faculty: 689 |
| Size of library staff | 99 |
| Size of library systems department | 7 (2 vacancies) |
| Size of University IT staff | Not given |

Georgetown Library indicates its systems office is severely understaffed. This is one of the few projects that had key involvement from the University Information Technology department, known as University Information Services (UIS). UIS works collaboratively with the libraries technology department - Library Information Technology. The University IT department manages the infrastructure for voice, data, and video networks; manages the university business infrastructure; and manages computers labs and a help desk.

Georgetown University decided it needed a means to stream media to their users; however, the skills to build and maintain a server were beyond the expertise of its staff and the libraries did not have the human resources to devote to building a streaming media server. Desire for this service may have come about since there is a media unit (Gelardin New Media Center) as part of the library. There were a few streaming media servers at people's desks, but these machines were not scalable and were not reliable enough to offer the service to the entire campus community. Georgetown was approached by a company called ShareStream.

*ShareStream is a secure, feature-rich digital media asset-management platform that delivers media through streaming, downloads and podcasts (the system is actually integrated with iTunes in an authenticated environment) and has the capability of housing and managing digital content at an institution-wide level. ShareStream.s plaform functions as a centralized content repository for multimedia assets that serves content in a federated manner to a multitude of online learning environments across many universities. ShareStream's rich media management and delivery solution was developed in collaboration with Georgetown University at their Sun Center for Scholarly Information. The platform is able to automate the process of encoding content, provide automated lecture capture with slide synchronization, provide an authoring tool that allows instructional designers to construct rich media web pages comprised*

*of text, streamed media, podcasts, and images; catalogue and archive media with the appropriate metadata, organize media into folders for courses, secure and control access to content, and audit user and content access. Sharestream has expanded to work with other Universities and business organizations.*

http://www.sharestream.com/pressroom.html

Because the library was working as a development partner with ShareStream, there were no costs for the software, just staffing resources. The project started slowly with only one person working on it, but it grew to include the efforts of several library departments and including the UIS department, but not the libraries systems department. The partners initially started on the basic programming required and then later focused on the interface design. The libraries are still working with faculty who were disappointed with early iterations of this service. While students seemed a little slow to accept new technologies at first, the demand for this streaming media increased quickly. Although the library feels it needs more work, library staff also express that this was an essential project, given their staffing and funding constraints, coupled with the need to deliver this service. This project is still in development for improvements and resolving bugs, but it is available for use in a production mode. Approximately six iterations of this product have been completed; the live product was launched after the second iteration. Overall, this project can be considered successful. Georgetown University Libraries feel that most universities have already implemented some form of streaming media or are trying to implement it now. Like the other media streaming project, it is not perfect, but it is a good start.

# PACE UNIVERSITY

## MEDIA PATCH

*Pace University, founded in 1906, is a private geographically dispersed institution with campuses in Lower New York City and Westchester County. Pace University offers three programs, bachelors, masters, and doctoral in the Dyson College of Arts and Sciences, Seidenberg School of Computer Science and Information systems, Law School, Lienhard School of Nursing, Lubin School of Business, and School of Education. Pace University is both a resident and commuter institution; a large percentage of the students are commuters. The composition of the student body is mainly female with a percentage slightly more than 60 percent. Further, 129 countries are represented by both immigrant and nonimmigrant students. Pace University Library is representative of the geographically dispersed Institution, with Lower Manhattan and Westchester County operations that are functionally interdependent and are centrally administered through the Office of the University Librarian. The Law Library in White Plains in Westchester County is functionally independent from the other libraries.*

http://www.pace.edu/pace/about-us/

| | |
|---|---|
| Size of community | 16,101<br>Undergrad – 8,030<br>Graduate – 4640<br>Law- 793<br>460- full time faculty<br>730 part time faculty<br>963 full time staff<br>485 part time staff |
| Size of library staff | 46 |
| Size of library systems department | 12, plus 6 student technical assistants* |
| Size of University IT staff | 95, excluding student employees |

* Systems include staff devoted to digital technology and preservation issues, cataloging and MARC records mapping, cataloging of electronic books.

The Library regularly interacts with Pace University's Department of Information Technology which takes care of the critical servers of the university and supports Library network needs: provides for repairs of laptop loaners, procures the computers from official university suppliers, provides for data loads needed by the library such as patron files, and provides for programmer assistance for files needed by the library coming from the Banner system. The library does consider the university IT department to be innovative.

The Pace University Library was receiving requests from online students to provide them with access to online media that was in the libraries' collection. The libraries were directing students to various commercial rental companies or suggested the students purchase the item. Like many sites, the libraries did not mail out their videos due to the potential for loss or damage in transit. Pace began to explore methodologies to digitize and stream the content. But the libraries received little positive feedback from commercial vendors of the videos and the costs seemed high. The copyright law also presented barriers for moving ahead. The library identified

some commercial products that seemed to address their streaming needs, but the costs were prohibitive.

Then the library decided to explore the development of an alternative internally, in a partnership with their campus information technology department. A server specification was developed and the developers made use of a Microsoft video product and started with a collection of nursing videos since someone in the nursing school was able to secure the copyright permissions. The test project was successful and the videos were made available through their Blackboard course management system. The project has been expanded since the initial prototype and testing. The library named the product MediaPatch.

One of the key reasons this approach was chosen was the cost. The development team also took an approach that recognized that while they could not address everything they wanted to, they could deliver some of it, thereby avoiding the trap of saying the system does not do everything we want so let's not do it, sometimes said that the perfect is the enemy of the good. The development team based their inspiration on the libraries mission:

> *to maintain a physical and virtual environment that promotes learning, supports teaching and scholarship, and fosters lifelong intellectual growth and discovery by providing all members of the Pace community with access to needed information resources… using information to solve problems and fully participate in the global community as informed citizens.*

The library believes that their online students are entitled to the same service levels that their on campus students receive. The library also based their decisions on a student-centered model and a decision to persist in spite of video producer resistance and the vendors' lack of

understanding of copyright law under the Teach Act. The library has paid careful attention to compliance with copyright law in the media they are offering.

This product went live in its current format with minimal testing, although various levels of service were phased in over time. Both faculty and students received this service favorably and appreciate its availability across multiple libraries. Minimizing the complications while improving access to the specific version of the video the faculty member wanted the students to view was also lauded. Overall the library felt its community accepted this technology readily, although some older students needed a little more assistance getting started. Library staff stated that the Generation Y students tend to just expect technologies such as this to be available and want the library to deliver the needed services. Linkages from Pace University courseware made access to this service easier. One of the big benefits is this allows faculty to have the students view the media outside of class thereby giving more time to discussion in the classroom, instead of watching a video as a group and having limited discussion time.

The library considers this product to be complete, although they do continue to monitor trends and new technologies. The library definitely would do this again because of the success of the project and the collaborative learning opportunities it provided. The library suspects it is just a matter of time before the streaming media services created are more widely available on a commercial basis. The library has encountered few problems, other than the occasional maxing out on simultaneous users, network downtime, and some initial problems with access on the MAC platform that was resolved.

MediaPatch is a wonderful example of a team effort with several campus departments: the campus technology department, the library systems, library administrators, and nursing. Several key people stepped up and worked to make this successful. This project is one that was

identified as a priority and had serious resources – both financial and staffing devoted to it. It is also an example of a library not allowing a stumbling block to prevent them from moving ahead, even if it was on a more limited basis than the library initially had hoped.

# DARTMOUTH COLLEGE

## CELL PHONE TOURS

*Dartmouth College is a four-year liberal arts institution that has been at the forefront of American higher education since 1769. A member of the Ivy League, Dartmouth is a superb undergraduate residential college with the intellectual character of a university, featuring thriving research and first-rate graduate and professional programs. This unique combination creates a highly personal learning environment for our exceptional students and faculty.*

*Dartmouth has 29 undergraduate academic departments and 10 academic programs divided into four divisions: the humanities, the sciences, the social sciences, and interdisciplinary programs. Many of these departments also offer graduate programs. In addition to Dartmouth's formal academic departments and programs, there are a number of centers, institutes, and other programs offering a broad array of opportunities for study and research.*

http://www.dartmouth.edu/home/academics/undergraduate_departments.html

| | |
|---|---|
| Size of community | 5,700<br>Undergrad – 4,100<br>Graduate – 1,600 |
| Size of library staff | 177.5 FTE |
| Size of library systems department | 7 |
| Size of University IT staff | Not provided |

Dartmouth is not a large school, but the systems office staff seems to be on the smaller side as compared to the size of the libraries' entire staff. Their campus IT department handles technical infrastructure and manages academic and administrative computing.

Unlike some other projects which were planned and implemented by the Libraries systems department, this project was instead driven by the Research & Instruction Services Department. This means that the role of the campus technology department and the libraries systems department became moot in this case study, even though these two departments do interact regularly. While the library staff did not directly address the degree of technical sophistication of the University I.T. department, the library points out that Dartmouth was one of the first completely wireless campuses in the United States. Their students are quite accepting of new technologies. This was a small project with the pilot being implemented only 14 months after the investigation into the technology began. The library started small and has added more tour information as time progressed.

The idea came from a library department head reading about cell phone audio tours that had been developed in museums and other institutions and had also read about the "Guide by Cell" product that was used to develop this service. Since so many people already use cell phones for many things, this really was less about a new technology and more about a new

application on an existing technology, the cell phone. The library found that their user base was quite accepting of this product.

The response from Dartmouth staff really does not provide enough details to determine how much original development the library actually did. The library did not describe the source of the product or actual development done. Most of the development work for this was done by just one individual who solicited content and developed the tour. The goal was to provide "just enough" information on this cell application and not try and explain everything. The library started out with a few pieces and continued to add to it. The library then involved a number of people in a fairly extensive marketing campaign though various campus channels.

The Dartmouth College library has gotten generally positive feedback about the tour. The library have not done a formal assessment of this project but, the library believes it addresses a need by providing the information in a "just in time" manner and giving just enough information to the user. The library feels it is probably something most people may use only once. On a sad note, the library comments that due to budget cuts this service will be discontinued, although the information will still be available as a podcast from the library website. Dartmouth Library indicates if it was not for the budget problems it would be likely continue this service and would do it again.

This appears to be a project that was done by a group of interested staff. It does not seem to have been vetted as a key priority project. This may, in part, be why it is being dropped during the time of a tight budget.

# ANN ARBOR DISTRICT LIBRARY

## ONLINE GAMING TOURNAMENT MANAGEMENT SYSTEM

*Ann Arbor is a city in the U.S. state of Michigan and the county seat of Washtenaw County. It is the state's seventh largest city with a population of 114,024 as of the 2000 Census, of which 36,892 (32%) are university or college students. The city, which is part of the Detroit-Ann Arbor-Flint, MI CSA, is named after the spouses of the city's founders and for the stands of trees in the area.*

*Ann Arbor is home to the University of Michigan, which moved from Detroit to Ann Arbor in 1837; it is the dominant institution of higher learning in the city. The university shapes Ann Arbor's economy significantly as it employs about 38,000 workers, including about 7,500 in the medical center. The city's economy is also centered on high-technology, with several companies drawn to the area by the university's research and development money, and by its graduates. On the other hand, Ann Arbor has increasingly found itself grappling with the effects of sharply rising land values and gentrification, as well as urban sprawl stretching far into the outlying countryside.*

http://en.wikipedia.org/wiki/Ann_Arbor,_Michigan

*Ann Arbor is a university town that loves its library, but with an unusual amount of economic and ethnic diversity for a town of its size. This gives the library a dedicated core of enthusiastic library users but a challenge to engage the rest of the community who may not be as interested in or aware of library services.*

*-from the respondent's survey*

| | |
|---|---|
| Size of community | 160,000 |
| Size of library staff | 250 |
| Size of library systems department | 11 (10.5 FTE) |
| Size of city IT staff | N/A* |

* Since the Ann Arbor District Library (AADL) does not have a parent organization, so there is no external IT department on which the library depends. Those questions from my survey pertaining to the parent IT department become irrelevant. There really are not existing standards to identify staff sizes for public libraries; however, it seems that this is a well staffed library.

Ann Arbor District Library in Michigan is one of two public libraries in my survey. I picked them partly because of my familiarity with this library, but primarily because AADL has a reputation for being innovative and creative. AADL in many ways reflects its community that is influenced by the presence of the University of Michigan. This gives them what can be considered a large web-savvy, computer knowledgeable, technical entrepreneurial audience. Their users are very open to new ideas. AADL also recognizes that they have users who are less technically savvy and are sensitive to information overload.

One of the areas where AADL was an early leader was in the area of computer gaming. What may make AADL a bit more unique is their online tournament management system. Eli Neuberger, the library staff member responsible for the tournaments, indicates that computer games are a form of story time. In this case, everyone becomes involved in the story – a participatory storytelling, because in many computer games, the plot can vary dependent on the actions of the players. Gaming in libraries very much falls into the arena of the social activities

and networks that many public libraries have embraced. Public libraries are going beyond their role in literacy and are very much becoming exciting social and recreational centers of their community.

AADL had started gaming tournaments in the library. The library determined that an online tournament management system was needed, although the staff do not consider it very cutting-edge technology. AADL developers stated that this library does not have many formal processes. Product development can start with a request from a staff person idea within the technology department or it can come from a member of public. The technology department decides who should work on the project or prototype, or who should develop design documentation where needed. Most projects wind up on an individual's desk with support from their coworkers, and they proceed with development autonomously with occasional consultation with management. This project was worked on by a series of developers, although typically only one at a time. It was never considered a high priority project. The library viewed this online tournament management system from a problem solving viewpoint. The developers were somewhat aware of a similar product, "Xbox Live," but really did not investigate it closely. The developers express that trying to 'just do something' with a new technology was not an approach that library would take, believing instead the library should focus on the needs of their users, using software tools and perhaps a new technology to meet those needs.

Although their online tournament management system is up and running, it is regularly updated with new iterations – now on version three – a completely new from the ground-up build. Much of their development comes from user feedback - comments and suggestions based on likes and dislikes, and also from the staff learning what works well and what does not. The library typically rolls out a new iteration in a live event and sees how well it works. Based on

their feedback the library considers their online tournament management system to have been very successful and they would definitely do it again. They have made it available as a free download at http://wiki.gtsystem.org. They offer that there was a huge need for an online tournament management system, so success was pretty much assured. They believe they have reached a skeptical group of users – teens, and it gives those participants an opportunity to consume the content that they love in a free, public, social environment without commercial influence, and it gives all kids, not just the athletic ones, an opportunity to compete with their peers and perhaps excel.

In this case we see that the library technology department set out to fix a known issue for the library. The project was entirely driven by library staff and used feedback from their users. While this was not established as a "library" priority through a formal process, it was indeed important to them. The library has created a product which it considers successful and their primary user group, teenagers, loves it. AADL would definitely do this project again.

# Conclusions

What did I learn? Obviously I learned more about each of these projects and the technologies that were used and I learned some of the key factors in the success of each project. Many libraries seemed to evoke the old Nike slogan, "Just Do It." It was clear that at these sites people were motivated and interested. They wanted to fix a known problem and were driven to do so. It almost seemed that in many cases a small cadre of people set about to do the project and make it work.

Most of the ten projects were done without any assistance from the campus or city IT. This was a big surprise to me. I would have thought such assistance was essential. In fact, in several of the cases the work was done independent of the Libraries' systems office. This shows that one does not always need the library systems department to be involved or take a strong role. The two projects that did involve the University Information Technology office both involved streaming media. These projects would require large servers and extensive bandwidth, so the involvement of the University Information Technology office was essential.

Based on previous writing (Muir, 2001), I was interested in the process for setting priorities. My survey instrument did not address that question as thoroughly as I would have liked; however, it seems that prioritization setting was not as big a deal as I had assumed. A shared sense of vision and importance to these projects was a motivating factor. In at least one case, there was a self-described evangelist who pushed a project though. As stated above, it seemed more that a group of people went ahead on these projects and there was little formal

process for establishing the importance of those projects. There are exceptions to this. The Endeca installation at the Phoenix Public Library was a high priority project. Endeca at McMaster had the director's interest behind it. A new director at Brown made their project a priority. One might assume there were others, just less clearly identified.

Many of my assumptions were wrong. I think my views may have been colored by the disfunctionality of many of the libraries in which I worked. I now have a much better appreciation of what can be accomplished in an effectively run library. I incorrectly assumed the importance of a strong campus or city technology department. I also incorrectly assumed the active participation of top management was a key to the success, and I thought that most libraries would actively indentify their project as a priority. While this may have happened in every case, it was not evident in my research.

The grant process and working through the Arizona State University Office of Sponsored Research (ORSPA) took longer than I had anticipated. Typically libraries openly share information, work together, and openly respond to questions and surveys. My impression is that ORSPA typically deals with research that requires a greater degree of confidentiality and protection. I suspect if I had not had a grant I could have skipped the research office process.

I ran into a number of challenges in conducting this survey, apart from the actual process of getting responses/returns and learning that I cannot count on professional relationships to garner a response from an email request. My information gathering process was flawed. I discovered it is very difficult to get a full and accurate response without the iterative process. Were I to do this again, I would use some form of iterative process, with either a follow-up phone call or an onsite visit. There was just too much confusion in this process and the way that I conducted it. Sites interpreted questions differently than I had intended in some cases, while

others did not answer as fully as I would have liked. In other cases, the respondents were looking at the project with such a different perspective than my own, that my questions did not make sense to them. I also found that sometimes I did not understand the technology enough at the onset to have asked the question that would best get at the data I desired. I needed a greater level of detail about management involvement than I got, for example. Despite the flaws, I still garnered useful information and have learned more about these technology automation project processes. I have also learned more about conducting such a survey and I have a renewed appreciation as to the difficulties in getting surveys completed and returned. I recognize that if I were designing this survey again I would ask some questions in a clearer manner and add additional questions about setting priorities. I definitely would get more help in designing my survey to insure that my questions were well formed and focused on what I really wanted to learn.

I did not come to any specific conclusion about staff size. A few sites mentioned that their systems offices were small, Georgetown and Notre Dame, but they both seemed to have developed work-arounds for this problem. None of these libraries in this study were tiny, so I am still not sure if a really small library with 3-5 staff could create an original software product. The responses to the degree of comfort with technology of the libraries user group did not yield any useful information.

There is room for more study in this area based on what I learned and also based on what I did not find out. However, as my career has evolved, my role in technology projects has greatly decreased and I may not pursue these options.

In the early part of the 21st Century a new library opened in Alexandria, Egypt – the Bibliotheca Alexandria (Long, 2009). Its developers hope this will be another great library. The case studies in my paper describe what ten organizations have done to make their libraries great using technology. Other libraries have done and will continue to do similar projects and services. A report written in the last few years offers suggestions as to what great libraries do. The technology projects in each of the case studies described in the report fall into one or more of these categories, because the projects could not stand on their own as the only offering from a given library, but are a part of the many things that library does (Project for Public Spaces).

**How to Make Your Library Great**

- Great Libraries Offer a Broad Mix of Community Services
- Great Libraries Foster Communication
- Great Libraries Showcase History and Information
- Great Libraries Build Capacity for Local Businesses
- Great Libraries Become Public Gathering Places
- Great Libraries Boost Local Retail and Public Markets
- Great Libraries Offer Easy Access
- Great Libraries Make the Surrounding Area Come Alive
- Great Libraries Feature Multiple Attractions and Destinations
- Great Libraries Are Designed to Support Function
- Great Libraries Provide a Variety of Amenities
- Great Libraries Change with the Calendar
- Great Libraries Depend on Wise Management

- Great Libraries Catalyze Community Revitalization

We know that the upcoming generation, often called Millennials, seamlessly incorporate technology into their lives and the questions this knowledge raises is how and to what degree libraries will incorporate technology (McVay)? How will they or can they achieve greatness using technology? Three authors offer their thoughts on technology and libraries.

Roy Tennant, a well respected spokesman and library technologist offers the following (Tennant). See the full article for more details.

1. Technology isn't as hard as you think it is.
2. Technology gets easier all the time.
3. Technology gets cheaper all the time.
4. Maximize the effectiveness of your most costly technology investment -- your people.
5. Iterate, don't perfect.
6. Be prepared to fail.
7. Be prepared to succeed.
8. Never underestimate the power of a prototype.
9. A major part of good technology implementation is good project management.
10. The single biggest threat to any technology project is political in nature. In the end, technology is the easy part. What's difficult is the people part.

Stephen Abrams (Abrams) has extracted the salient points from the book Market Place Disruption by Adam Hartung.

1. What are the biggest obstacles to innovation in your organization?

2. Why do projects identified in brainstorming or ideation sessions seem to never get off the back burner?

3. Why is there so much funding for legacy work, but so little funding for innovation?

4. When you know you have to do something new, why does it seem like your organization keeps doing what it always did - knowing full well results won't improve?

5. What metrics need to change in order to create focus on innovation?

6. Why do managers pay lip service to innovation, but never give innovation projects more time and attention?

7. Why don't customer interviews produce more innovation?

8. Why do we get surprised by competitors that introduce new solutions in our core business?

9. What should happen to give you more time to create innovative solutions in your business?

10. Who should be responsible for implementing innovation?

11. How does the budgeting process accommodate innovation projects?

12. Are "disciplined" or "focused" organizations better, or worse, at implementing innovation?"

Scottsdale (Arizona) Community College technologist, Roseline Williams (Williams, 2008) also offers a set of suggestions.

1. Know the context – the tasks and the users being served – and have clearly defined goals. Adopting a technology without considering the context does nobody any good.
2. A winning technology is the one that will simplify the user's life and increase value for their time spent.
3. Don't sacrifice elegance for more or complex functionalities – it doesn't work. By elegance, I mean especially ease of use and the look and feel. We think that technology is so powerful that we expect it to do everything, and the end result is usually a giant octopus that nobody likes to handle.
4. Adopt technology that makes the change look obvious. Otherwise, don't bother.
5. Design for the future. Technology projects take a lot of time and resources. Being trendy doesn't mean better, unless you can afford to reinvent your organization or service every two to five years. Starbucks and Harley-Davidson, hailed as the stars of the "experience economy" and both now struggling, are two good examples. Turn technology into a launch pad for growth, rather than a constraint.
6. Serve the niches. Innovative technologies are not for everyone and they will never be, so consider only the niches you are serving. For example, don't

compromise a technology that serves tech-savvy commuters well, just to make it so people who don't use the technology can use it too.

7. Allow personalization and collaboration. Take advantage of these two things that technologies do best, instead of blocking them.

8. Work with your IT team right from the beginning. To be honest, they know something we don't and vice versa. By all means, let's work together.

9. Whenever there is a barrier that seems impossible to overcome, change your course and revisit the idea later, if there is still a need. Don't waste your time arguing about non-technological issues, unless you are a library administrator.

10. Play, experiment before committing yourself, or say no to the technology. Do it with others. The more people in the sandbox, the more fun you are going to have.

There are opportunities for most, if not all, libraries to achieve greatness. It may be on a small scale of providing friendly, excellent service to a library that continuously creates new ways to exceed user expectations. My research findings show that many different types of libraries can do technology projects that exceed out-of-the-box implementations. However, in some cases an out-of-the-box technology may meet one's user community perfectly. It was notable that each of the libraries I surveyed indicated that they would definitely do the project again. Their projects were implemented and they considered them successful. It seems that the best approach is to seriously consider the opportunity, and where possible, to try it, and perhaps try it several times until works. Like the great libraries in my survey, your library may just find it has a success on its hands.

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# Libraries Achieving Greatness: Technology at the Helm

**Proposal and Abstract**

Libraries have been around for thousands of years. There have been many libraries that can be considered as great, perhaps starting with the Library of Alexandria, that have long since perished. Typically this greatness is associated with a larger building or larger collection and is found in a community rich in resources. We see this in some of the world's finest museums where it is no coincidence that they are located in some of the world's greatest cities. Library buildings can stand as monuments to their importance. New York Public Library's Research building with it iconic lions standing out front are respresentiave of architectural greatness. Many libraries are considered great by the size of their collections, and Harvard University's 15 million volumes offer an example of this. Yet collection size and architecture are only two measures of greatness.

Libraries can also be considered great because of their services and responsiveness to their community, be it a small town or large city, a small college or a major research University. Technology often takes a key role in the delivery of the most innovative of services. This paper will focus on those libraries that are considered "great" because of a specific technology-based service they have introduced.

This paper will offer a brief overview of library technology and a brief history of library services to provide a basis of understanding for these new services. Early automation projects look back into the first days of the card catalog, driven by standards that focused on creating a uniform size of the card, the display of the information, and even the placement of the hole in the card. We look to Benjamin Franklin's founding of the first public library in the United States at time when only the wealthy had ready access to collections of books. Franklin recognized the importance of this service for the common good.

This project will be original research into the application of a technology that makes individual libraries great. I plan to keep my focus on North-American libraries, primarily in the United States and Canada. Their funding and organizational structures will be more familiar to me and will allow me to focus on the technology rather than trying to understand the support infrastructure models of other countries.

I will design a survey, preliminary draft included, that will require I interview the sites I select. The iterative process of discovery will be an integral part of this research. The survey will also focus on the specifics of the project from its inception to the design and implementation, various interactions, feed back from users, and maintenance and ongoing support. Some of the keys here will be to understand what inspired the subject library's project/product and how this library was able to successively implement it. While this can incorporate infrastructure, having computer power and resources alone is not enough.

It does require the staff have an expertise, dedication, and interest to see this happen. It requires a shared vision and buy-in from the various parties involved to keep such a project moving forward and not end up in a stack in someone's in-box or being stuck near the bottom of a to-do-list.

I want to understand the inspiration for the project, because that is often a part of a new project – seeing a need and trying to develop a solution, so that will be a part of my survey. When one considers the work of the prolific Thomas Edison and his laboratory at Menlo Park, much of his success was based on persistence, trying process after process until one of them worked satisfactorily. He also had a large staff and finely stocked laboratory that helped him with his experiments. This speaks to the value placed on the facilities and staff to support the development and implementation.

While one may expect research libraries to attain greatness, it is my belief that a smaller library can also be great. At the same time, while size may not be the only determining factor, technology in complex organizations such as libraries does require a depth of staffing and a degree of technical sophistication and expertise. To explore these aspects, I will look at a number of statistical factors regarding the size of the staff.

To solicit the libraries for the survey, I will pursue multiple paths. One is based on my personal knowledge of some the technology-based services developed by libraries. I will consult with my colleagues to identify other libraries that may be candidates for my research. I will work with agencies such as the Association of Research Libraries and the American Library Association to garner potential candidates.

Some of these specific library based technologies have been reviewed in the literature. I will include a bibliography of each these services as part of my project, when this adapt is available. I will conduct a further review of the literature to see what ideas this can generate, but my explorations to date have found little or no material written in this area, so this searching may yield few results.

The goal of this paper will primarily be to offer some understanding of the environment and events that led to the creation of the identified project/service. I hope to determine if there exist any similarities and differences and see if there are key factors that are common in the success. I am hopeful that the results may lead to a publication in the library literature.

**Draft Survey**

Description of the community
# of people in community (town, college, university)
Size of library staff
Size of library systems department (total # and FTE)
Size of parent organization IT department (total # and FTE)
Does the library interact regularly with the parent organization IT, depend on them, etc.
What kinds of services does the IT department typically provide for the library?
Would you consider the IT department very innovative, at the cutting edge?

Scott P. Muir
STS697
Fall 2007

What was the inspiration for the project?
Was this an outcome of one individual or a team project or something else? Please describe.
Describe the projects/products development from inception to the point of implementation.
What was the role of the town or university IT department on this product/project?
(or) Was this more due to the efforts of the library systems office?
Was this project really library driven or IT driven?
How did you get use input into this product / project?
How did that input change the product/project?
How does this product benefit your community?
How many iterations of this project did you try out before offering it to your users?
What challenges and failures were encountered that may or my not have eventually led to success?
Is this product considered complete or in a maintenance mode, or is it sill in development?
Would you do this again if you were doing it today, why/why not?

**Estimated time line (during 2008)**
January-February Prepare survey, identify candidates
February-March Contact candidates for willingness to participate
March-May Conduct interviews
June-October Analyze results, write paper
October 1, Submit draft of paper for feedback
October 15-December 8 Complete final edits
December 8, 2008 Submit final paper

**Initial Bibliography**

"Great libraries of the ancient world."
http://en.wikipedia.org/wiki/Great_libraries_of_the_ancient_world>.

American Library Association. Library and Information Technology Association. Journal of Library Automation."
<http://www.lita.org/ala/lita/litapublications/publicationsarch/jola0303.cfm>.

Baker, David. The Strategic Management of Technology : A Guide for Library and Information Services. Oxford: Chandos, 2004.

Project for Public Spaces. "How to Make Your Library Great."
<http://www.pps.org/info/newsletter/april2007/library_attributes>.

Endeca
NCSU
Kristin Antelman

1. Description of the community

North Carolina State University is a large state university, one of 16 institutions in the University of North Carolina System.

2. # of people in community (town, college, university)

27,000

3. Size of library staff

270

4. Size of library systems department (total #and FTE)

17 (16.5 FTE)

5. Size of parent organization IT department (total # and FTE)

approx. 500

6. Does the library interact regularly with the parent organization IT, depend on them, etc.

Yes.

7. What kinds of services does the It department typically provide for the library?

Networking, software image for public workstation, site licensed software, email and calendar services.

8. Would you consider the IT department very innovative, at the cutting edge?

No.

9. Describe the projects/products development from inception to the point of implementation

January 2005 I and our Head of IT visited Endeca offices to discuss their solutions. I made a business case for acquiring this software to the senior administrative group and through the spring we undertook negotiations with Endeca. We began implementation when staff became available (August 2005). A project team was formed to assist with issues such as data mapping and migration, user interface design, and usability testing. A number of open sessions were held showing library staff the potential of the new too, and there was universal enthusiasm for it. The new interface went live January 2006.

10. Why did you select this particular technology over the other products?

At the time it was selected, there were no comparable products in the library marketplace. We selected this product (when there were potentially others in the broader marketplace) because Endeca demonstrated and inters in, and knowledge of, the library community and library data.

11. What was the inspiration for the project?

Learning about the Endeca product and their interest in libraries.

12. Did the project come about due to knowledge of a new technology/software?

Yes.

13. (or) Was this an idea in search of the software/technology to do it?

No, except to the extent we knew we were very unhappy with our OPAC and wanted to improve it.

14. Was this an outcome of one individual or a team project or something else? Please describe.

Identification of the solution was primarily two individuals (myself and Head, IT), but implementation was a team project.

15. How would you describe your community in terms of their degree of comfort and acceptance of new technologies?

Very strong. There's never been resistance to any technology we make available.

16. Do you think there are factors that made them more amenable to this technology/service?

More amenable to this than ?? The state of the catalog led stakeholders to be amenable to just about anything that improved it. They were, for similar reasons, amenable to a quick implementation with a commitment to continued improvements over time.

17. What have been their reactions?

Both the community and library staff have been very positive. Usability testing showed the Endeca catalog was significantly more effective in meeting user needs

than the catalog it replaced.

18. What was the role of the town or university IT department on ]

this product/project?

19. (or) Was this more due to the efforts of the library systems office?

Yes.

20. Was this project really library driven or IT driven?

Library-driven

21. How did you get use input into this product/project?

Usability testing, focus groups, log analysis.

22. How did that input change the product/project?

Both had an impact on UI decision and prioritization of services development.

23. How does this product benefit your community?

Improved discoverability of library collections.

24. How many iterations of this project did you try out before offering it to your

users?

Really just one. As soon as the implementation was complete it was launched as a

Production product replacing (most of) our previous catalog functionality.

25. What challenges and failures were encountered that may or may not have

eventually led to success?

A potential hurdle was negotiating the license (that can be difficult at NC State).

After that the only hurdle would have been if we had lost our lead developer.

26. Is this product considered complete or in a maintenance mode, or is it still in

development?

It is continual development.

27. Would you do this again if you were doing it today, why/why not?

Definitely. W e did do it again, in fact, with an Endeca-based union catalog for the Triangle Research Libraries Network, which went into production March 2008. If we (NCSU) were starting at this point, we may also loot at open source alternative (but not for a project as complex as Search TRLN).

Note: This document was sent to me via fax. It was converted for this report in MS Word format.

Yours to Explore
PhoenixPublicLibrary
www.phxlib.org

# ENDECA PROJECT
# FOR
# SCOTT MUIR, DIRECTOR OF ARIZONA STATE UNIVERSITY DOWNTOWN CAMPUS LIBRARY

1. Description of the community

   **Phoenix is the 5th largest city in the United States comprising 517 square miles. The metropolitan area has a population of 4.5 million composed of a dozen suburban cities surrounding Phoenix. The unemployment rate of the Phoenix metro area in June 2008 is 3.8% compared to 4.4% for the state of Arizona and 5.5% for the U.S.[1]**

2. Number of people in community (town, college, university)

   **The current population of Phoenix is 1,554,538[2].**

3. Size of library staff and overview.

| | | |
|---|---|---|
| Librarians (I, II, III, IV, Deputy Directors, Assistant City Librarian, City Librarian) | 98 | 94.3 |
| Library Assistants | 128 | 73.5 |
| Library Technology Assistants | 10 | 9.5 |
| Support Services Supervisors | 2 | 2 |
| Library Circulation Attendants (I, II, III) | 125 | 79.5 |
| Library Clerks (I, II, III) | 85 | 60.4 |
| Library Pages | 125 | 62.7 |
| Administration Positions (Admin. Assistants, Accountants, Secretaries, Account Clerks, Supply Clerks, Public Information Specialist, Personnel Office, Personnel Analyst, Personnel Clerks, Library Facilities Manager, Budget Analyst, Development Officer) | 19 | 19 |
| Information Technology Positions | 15 | 14.5 |
| Couriers | 4 | 3.5 |
| Municipal Security Guards | 39 | 21.8 |
| | | |
| ***TOTAL*** | ***650*** | ***443.4*** |

[1] City of Phoenix Planning Department Business & Industry Data Center. Data Summary Sheet June 2008.
[2] City of Phoenix Planning Department Business & Industry Data Center. Data Summary Sheet June 2008.

**The Phoenix Public Library has a large central library and 14 branches. Two new branches will open between FY 2009/10 and 2011/12.**

**The following tables illustrate growth in service, increased participation in programs, and an expanding use of Library resources.**

| Activity | 2000/2001 | 2007/08 | % Increase |
|---|---|---|---|
| Door Count | 3,775,469 | 5,167,958 | 37% |
| Circulation | 9,150,821 | 15,835,088 | 73% |
| Reading Program Participation[3] | 48,751 | 102,342 | 110% |
| Website Usage | 2,055,089 | 25,749,385 | 1,142% |

**The majority of the Library's PCs are used by the public every open hour. Currently all Library facilities are open 72 hours per week. Public Internet PC usage has increased as follows:**

| Hourly Sessions Per Year | 2004/2005 | 2007/2008 | % Increase |
|---|---|---|---|
| | 451,517 | 1,192,963 | 164% |
| # Public Internet PCs | 283 | 410 | 45% |

4. Size of library systems department (total positions and FTE)

| Classification | Positions | FTE |
|---|---|---|
| Information Technology Project Manager | 1 | 1 |
| Senior Information Technology Systems Specialists | 1 | 1 |
| Lead User Technology Specialist | 2 | 2 |
| Information Systems Specialist | 1 | 1 |
| Senior User Technology Specialists | 1 | 1 |
| Information Technology Application Programmer I[4] | 1 | 1 |
| Information Technology Application Programmer II | 2 | 2 |
| User Technology Specialist | 6 | 5.5 |
| | | |
| ***TOTAL*** | ***15*** | ***14.5*** |

[3] Reading program participation includes the Summer Reading Program, Teen Summer Reading Program, Teen Read Month in October, and the Winter Reading Program.
[4] This position will be filled in April 2009.

5. Size of parent organization IT department (total number and FTE)

| Classification | Positions | FTE |
|---|---|---|
| Enterprise Business Application Services Division | | |
| • Business applications Support | 21 | 21 |
| • Database Administration | 8 | 8 |
| • GIS & Web Development | 10 | 10 |
| • PhxWeb Content Management | 6 | 6 |
| • SAP Services | 4 | 4 |
| Enterprise Technical Services Division | | |
| • Directory and System Services | 11 | 11 |
| • IT Operations Center | 13 | 13 |
| • ITOC Business Continuity Programs | 1 | 1 |
| • Systems Management | 6 | 6 |
| Enterprise Technology Management Division | | |
| • Application Certification Team | 4 | 4 |
| • Enterprise project Management | 4 | 4 |
| • Enterprise Security Management | 4 | 4 |
| • Technology Planning | 1 | 1 |
| Enterprise Telecom & Network Infrastructure Division | | |
| • Network Services Management | 7 | 7 |
| • Switchboard Services | 12 | 12 |
| • Telecom Accounting | 4 | 4 |
| • Tele Services Management | 15 | 15 |
| Management Services Division | | |
| • Financial Services | 4 | 4 |
| • Management Support Services | 13 | 13 |
| • Personnel/Payroll Services | 3 | 3 |
| • Technology Support Services/Cable | 4 | 4 |
| Office of the CIO | 3 | 3 |
| Phoenix Regional Wireless Network | | |
| • Radio Systems Services | 34 | 34 |
| | | |
| ***TOTAL*** | ***193*** | ***193*** |

6. Does the Library interact regularly with the parent organization IT, depend on them, etc.

   **The Library does interact regularly with the City's IT department by participating on all levels of general IT meetings held for all**

**departments. The City of Phoenix IT is decentralized as most departments have their own separate IT operation ranging from 5 or less to 30+ FTE. The Library depends on the parent organization IT for:**

- **IT standards.**
- **IT budget.**
- **All data / telecommunications line procurements, contracts, and maintenance.**
- **Internet access. The Library has its own separate network running from the Burton Barr Central Library (BBCL) to all branches. Internet traffic from all Library locations comes to BBCL and is then passed to the City for Internet access.**

7. What kinds of services does the IT department typically provide for the Library?

   **See #6 above.**

8. Would you consider the IT department very innovative, at the cutting edge?

   **No, on the whole they are very conservative; however, the ITS department does have a new CIO and is introducing changes.**

9. Describe the projects/products development from inception to the point of implementation.

   **In 2002, the Library created a vision of the customer Web experience at the Phoenix Public Library. That translated into a 2003 redesign of the website incorporating a strong retail design and philosophy introducing promotional content and "my account" features. It also began to offer limited integration between the online public access catalog (OPAC), "my account," programming, electronic resources, and library related information.**

   **Since that time, the Library kept an eye on the marketplace for a product that would take the website to the next level and expose the full richness of the catalog data, fully integrate the catalog with information resources and library services, offer full web services functionality, and follow a retail design approach.**

   **In the summer of 2005, the Library conducted a staff review of two products that had recently come into the Library marketplace that had the potential of taking the website to the next level. The two products were AquaBrowser and Endeca. Endeca was found to be**

**the better product as it enabled the Library to totally control the customer experience without second party intervention or control.**

**See Attachment A – Endeca Site Specifications, November 2005 and Attachment B – Endeca Site Development Schedule.**

**The project began with Endeca training in fall 2005, the site specification plan was completed in November 2005, and the project kickoff wasin January 2006. In January 2007, the site went live in test mode as a link off the then current website, and was officially launched in late March 2007.**

10. Why did you select this particular technology over other products?

**Endeca is a retail product designed to expose all aspects of a company's retail products and cross promote products and services. The Library is using Endeca to manage, develop, and evolve both the searching and cross-promotional functions to meet customer expectations. Most users of any library website have had experience using a retail site. The have built their expectations on those visits. The Library believes that the customer should have the same type of quality experience when they visit the Library. The Library's competition for online customers is not the library down the block, but the commercial world of Amazon, Barnes & Noble, Home Depot, and every other retail website.**

**Endeca gives the Library the ability to completely expose the richness of the MARC record, provide guided navigation searching, follow a Barnes & Noble / Amazon style approach for promoting catalog items and services, and facilitate true virtual browsing.**

11. What was the inspiration for the project?

**Amazon, Barnes & Noble, Chapters (Canada's B&N/Borders) Home Depot, and many other highly sophisticated retail websites.**

12. Did the project come about due to knowledge of a new technology/software?

**No, we were already doing it in a limited way.**

13. (or) Was this an idea in search of the software/technology to do it?

**Yes, once the technology was identified, the project was planned and began in January 2006.**

14. Was this an outcome of one individual or a team project or something else? Please describe.
**This was entirely a team project involving an administrative sponsor and team composed of Library IT, cataloging, and public service staff. The primary responsibility for the daily project programming development rested with the Library's Web Manager and assistant. Implementation of BISAC subject heading and codes were the responsibility of the Library's Bibliographic Enhancement Supervisor and cataloging staff.**

15. How would you describe your community in terms of their degree of comfort and acceptance of new technologies?

**Comfortable. Our experience has told us that with every introduction of new technology or enhancements there was little to no public dissatisfaction. Usual comments indicated that the customers want more.**

16. Do you think there are factors that made them more amenable to this technology/service?

**As the 5th largest city in the nation there is a significant local technology industry, a growing number of post secondary education institutions, and a large X / Y generation population. It is natural that there is a growing technology savvy population with technological skills and expectations.**

17. What have been their reactions?

**Three months after the Endeca website was launched, the Library conducted a customer satisfaction survey. The results were as follows:**

| Customer Satisfaction with ... | Satisfaction Rate |
|---|---|
| Website design, look, and feel | 92% |
| Website user friendliness | 91% |
| Website Searching | 93% |
| | |
| | |
| Browsing | 86% |
| Renewing items | 91% |
| Placing Holds | 92% |
| My Bookshelf | 94% |
| My Events | 87% |
| Ask a Librarian | 86% |

| | |
|---|---|
| Events Calendar | 89% |
| | |
| | |
| Books | 92% |
| Movies | 94% |
| Music | 91% |
| Learning | 87% |
| Kids | 89% |
| Teens | 85% |
| Business | 83% |
| | |
| | |
| | |
| **Customers' Major Primary Activity On the Website** | |
| Searching / browsing for library materials | *93%* |
| Renewing of library materials | *79%* |
| Conducting research | *34%* |
| Searching for library programs | *27%* |

18. What was the role of the town or university IT department on this product/project?

    **None.**

19. (or) Was this more due to the efforts of the library systems office?

    **Totally a Library project with an administrative sponsor and a team of Library IT, cataloging, and public service staff.**

20. Was this project really library or IT driven?

    **Same as # 19 above.**

21. How did you get use input into this product/project?

    **There were several usability tests.**

    **Staff Usability Survey Results, May 11, 2006**

**The report detailed the results of the staff usability survey. The purpose of the survey was to evaluate the effectiveness of the software in searching the Library's catalog. Specifically, the survey was to discover if materials from the catalog are easily found and how quickly they were located. Thirty (30) completed the survey performing a total of 213 tasks. The resulted showed that:**

- **More than 97% of the tasks were successfully completed, meaning that out of 213 different searches, 207 searches were successful.**
- **85% of the tasks were considered to be quickly completed, 9% were considered to be completed in moderate amount of time and 6% were considered slow completed.**

**The evaluation clearly pointed areas for improvements.**

**Prior to "going live" in test mode (a link off the old website), staff were asked to overload the website with searches. After several tests, load balancing was achieved.**

**During the test mode, constant feedback was received both from the public and staff. Each concern was addressed and improvements made until the new website was launched in late March 2007.**

22. How did that input change the product/project?

**The input did not change the project, just provided continual feedback that ultimately improved the final product.**

23. How does this product benefit your community?

**A fast, easy to use, intuitive library website that is comparable to Amazon or Barnes & Nobel. The retail approach to the website completely integrates the search into the website, thus the catalog is the website, and the website is the catalog. It also cross promotes other materials / information resources, other library services, and programs.**

24. How many iterations of this project did you try out before offering it to your users?

**Three –**

- **Usability survey website.**
- **Test mode website with multiple "skin" options.**
- **Production website.**

25. What challenges and failures were encountered that may or may not have eventually led to success?

**The Endeca project encompassed two major integration efforts that carried significant risk.**

**a. Integrating the Endeca platform into the Library website. This portion of the project carried many challenges that required the Library to work closely with the Integrated Library Systems (ILS) vendor for extracting and integrating bibliographic data into the Endeca search engine. Because this product was not directly licensed from Endeca, the Phoenix contract did not include direct support from Endeca. Phoenix was the second library (North Carolina State University was the first) to integrate a bibliographic database with the Endeca platform; however, Phoenix was the first public library to use Endeca.**

**b. Integrating vendor Application Programmatic Interface (API) for bibliographic and patron integration. The final deliverable required the Library to showcase the integration possibilities with full record queries in real time, patron account integration and transactions. This effort relied heavily on a beta version of the ILS vendor API for retrieving bibliographic records, validating patron records, retrieving patron account information, and performing transactions. The project experienced several delays while working with the ILS to improve the API during development.**

26. Is this product considered complete or in a maintenance more, or is it still in development?

**The Endeca project is currently in maintenance mode. Phoenix is always exploring new enhancements for improving the online experience of customers and is continuously improving the platform by implementing new features.**

27. Would you do this again if you were doing it today, why/why not

**The Library would absolutely do it again. The Endeca project enables to Library to meet their customer's website experience, allows for continuous change to meet customers' expectations, and is ILS independent.**

**The Library's website was awarded the 2008 Outstanding Achievement in Local Government Innovation Award from the Alliance for Innovation.**

# ATTACHMENT A

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# Design Specifications
## Phoenix Public Library
## Endeca Implementation

November 23, 2005
Jesse Haro

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## 1 Introduction and Background

The Phoenix Public Library has served as an information hub in the local community since its establishment in 1898. Citizens, businesses, schools and visitors have enjoyed a long tradition of convenient access to information, resources and programming.

In keeping with this longstanding tradition of service, the Phoenix Public Library expanded its service offering to include an online public access catalog in 1998. The website greatly improved access to Library materials, resources and services.

The Library's website underwent a major redesign and infrastructure re-engineering in 2003. The redesign showcased a number of integration and promotional innovations in Library website design.

In January 2005, the Library investigated several options for improving the integration of the Library website with the bibliographic and patron databases. These options included the Endeca Guided Navigation™ and the AquaBrowser™ search platforms. Following a comprehensive overview of both platforms, the Phoenix Public Library licensed the Endeca platform in July of 2005 and began a yearlong effort to integrate a new discovery layer to the Library website.

## 2 Project Objectives

The objectives for the project focus on the following areas:

- **Enhance searching and browsing of Library materials and resources**
  - Improve speed and access to the full bibliographic database
  - Expose the richness of the MARC record
  - Incorporate advanced features such as Spell Correction/ Did You Mean functionality.
  - Incorporate retail friendly subject headings for improved browsing (Book Industry Standards and Communications).
  - Integrate the Library services and programming information into the search index

- **Integrate the patron account and patron transactions into a single web presence.**
  - Enable full patron account access within the website, including personalization, placing holds and renewing materials.
- **Integrate promotional content into searching and enable cross promotion/ up-selling of Library services**
  - Integrate Reader's Advisory listings

    - Integrate Best Sellers/ Award Winners and other recommended listings
    - Incorporated usage statistics for refinements (circulation reports)
- **Implement a stronger retail/promotional design**
    - Introduce format based navigation, similar to the organization of a retail model
    - Incorporate a promotional design to expose the depth of the Library catalog
- **Replicate the experience for Kids, Teens, Español**

## 3 Revised Content Requirements

The use of a guided navigation platform allows for greater integration between the bibliographic database and the Library website. The dimensions and properties made available through the guided navigation enable a revised sitemap according to more popular material formats.

**New Tier 1 Headings**

- Books
- Movies
- Music
- Magazines & Newspapers
- Images
- Government Documents
- Library Resource Guides
- My Account

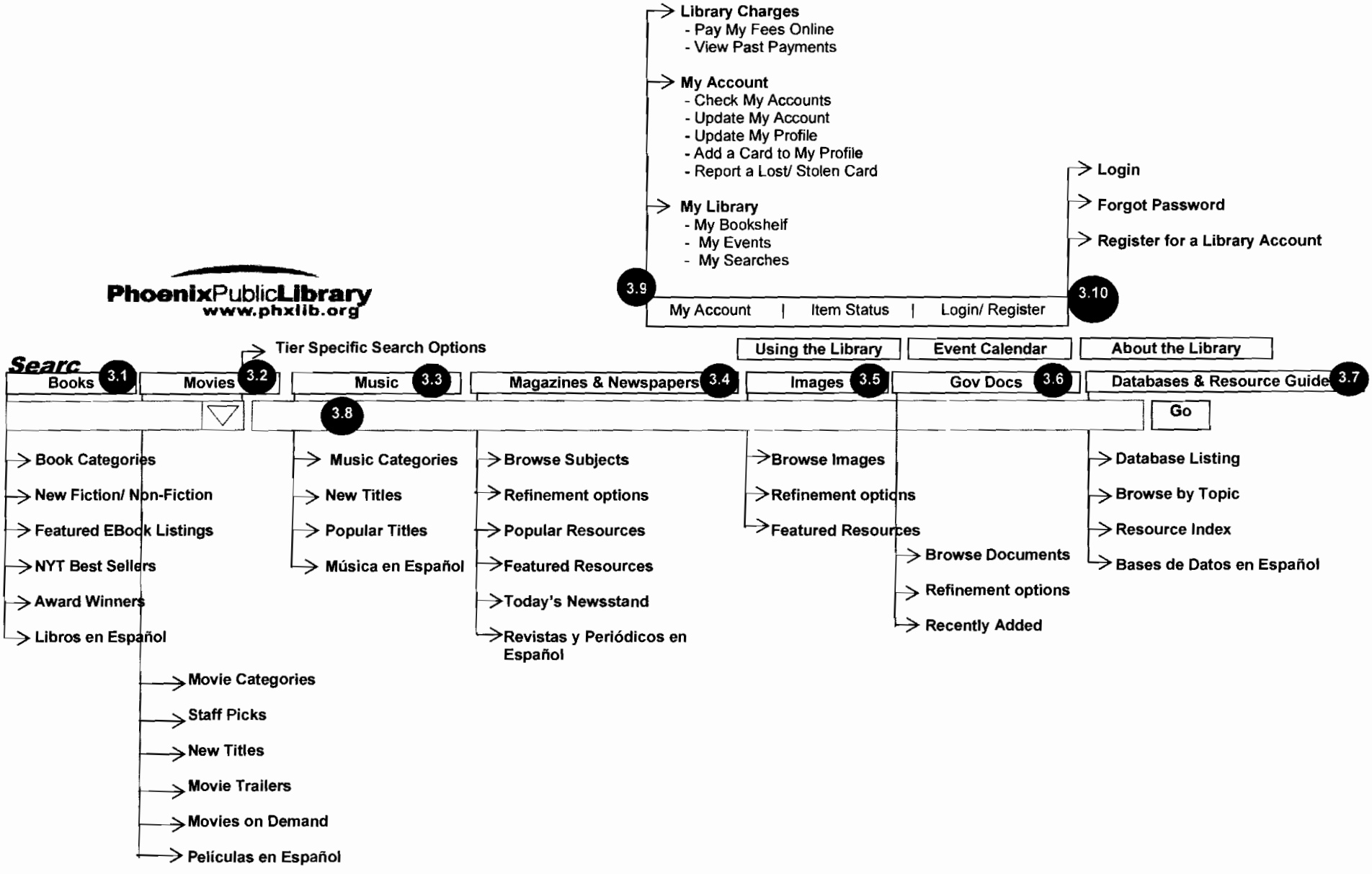
**Existing Tier 1 Headings (Unchanged)**

- Using the Library
- About the Library
- Events @ the Library

**Content-specific web pages are also maintained:**

- Phoenix Public Library for Kids
- Blaze (Teens)
- En Español
- Senior Living
- Business

Figure 1 – Revised Site Index



### *3.1 Books*

The Books content heading represents the top-level dimension for browsing non-AV related titles, excluding books on tape/CD and downloadable e-audio.

**Endeca Child Dimension Values**

- Libros en Español – Represents the selection of "spa" Language dimension value to limit results to Spanish titles with a parent dimension value corresponding to "Books"
- Book Categories
    - BISAC-Call # taxonomy

**Available 1st Level Refinement Options**

Available dimension values are "Books" specific.

- Availability
    - Checked In
    - On Order
    - Featured Title
- Location – Branch codes. (Default set for internal users)
- Format
    - Books on CD
    - Books on Cassette
    - Downloadable eBook
    - Large Print
    - Braille
    - Manuscript
    - Manuscript (Microform)
- Age Level
    - Adult
    - Juvenile
    - Children's
- Popular
    - New Fiction
    - New Non-fiction
    - Most Borrowed

**Available 2nd Level Refinement Options**

2nd level refinement options require the selection of child or 1st level dimension. Dimension values are auto-generated.

- Series
- Featured Authors
- Geography
- People of Interest
- Time periods
- Other Languages

See Appendix A for dimension definitions, values and MARC level mappings.

Figure 2 – Tier 1 Dimension Template (Books)

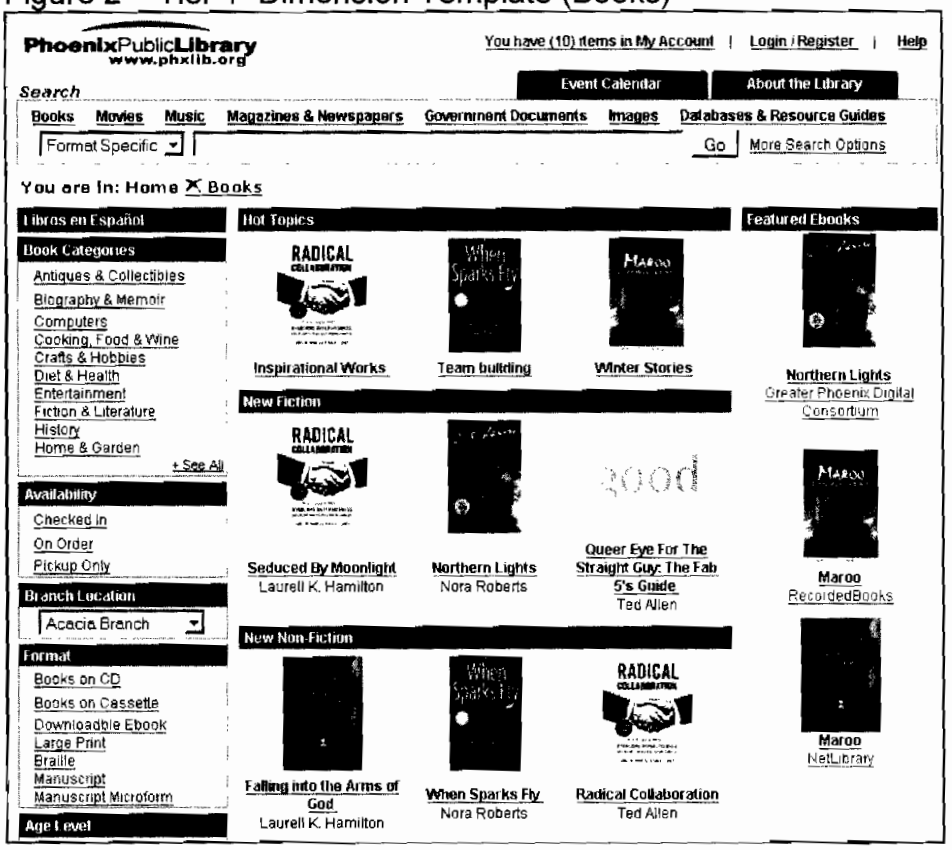



Figure 3 – Tier 2 Dimension Template (Books > Antiques & Collectibles)

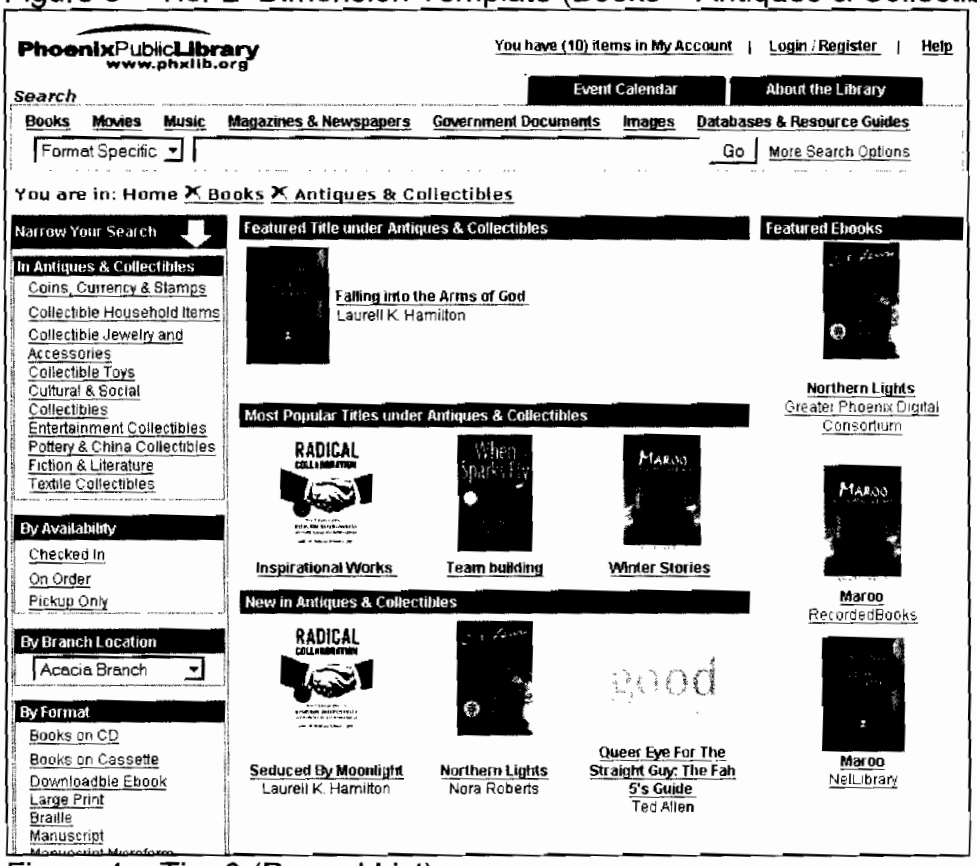
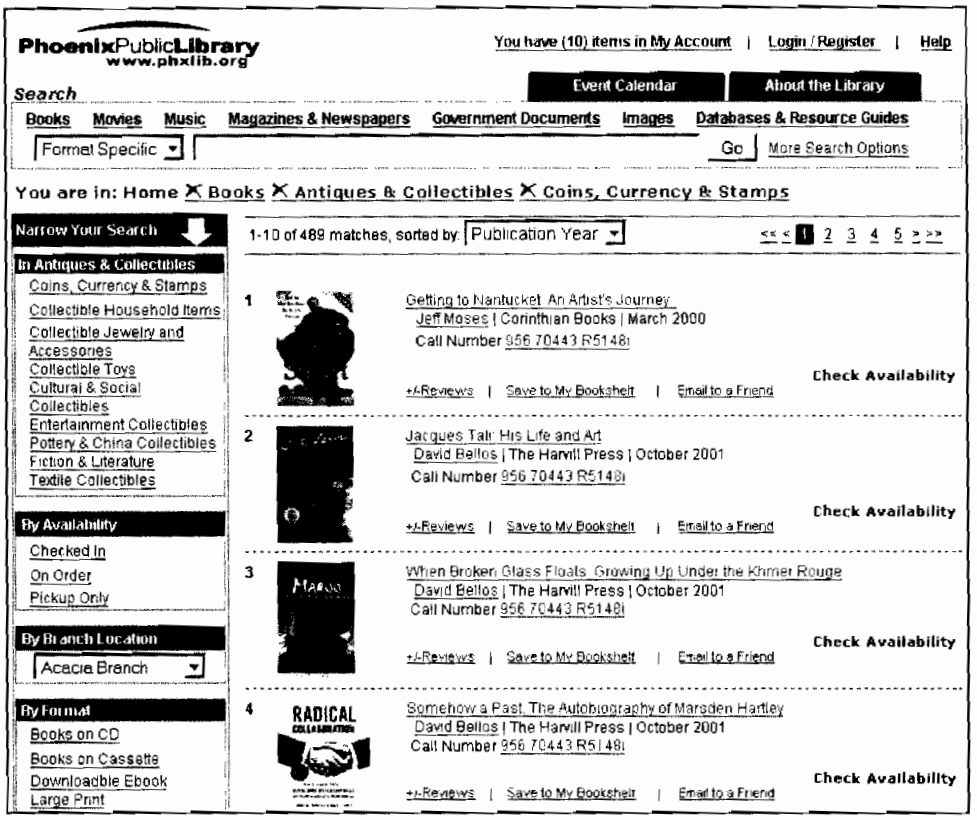



Figure 4 – Tier 3 (Record List)




### *3.2 Movies*

The Movies content heading represents the top-level dimension for browsing video-related titles.

**Endeca Child Dimension Values**

- Películas en Español – Represents the selection of "spa" Language dimension value to limit results to Spanish titles with a parent dimension value corresponding to "Movies"
- Movie Categories
    - Call # based taxonomy

**Available 1st Level Refinement Options**

Available dimension values are "Movie" specific.

- Availability (same as Books)
- Location (same as Books)
- Format
    - VHS
    - DVD
    - Streaming Video
- Age Level
    - Adult
    - Children's
- Popular
    - Recently Added Titles

**Available 2nd Level Refinement Options**

Same as Books.

### *3.3 Music*

The Music content heading represents the top-level dimension for browsing music-related titles.

**Endeca Child Dimension Values**

- Música en Español – Represents the selection of "spa" Language dimension value to limit results to Spanish titles with a parent dimension value corresponding to "Movies"
- Music Categories
    - Call # based taxonomy

**Available 1st Level Refinement Options**

Available dimension values are "Music" specific.

- Availability (same as Books)
- Location (same as Books)
- Format
    - Audio Cassette
    - CDs
    - LPs
    - Musical Score
    - Vocal Score
    - Miniature score
- Age Level
    - Adult
    - Children's
- Popular
    - Recently Added Titles

**Available 2nd Level Refinement Options**

Same as Books.

### *3.4 Magazines & Newspapers*

The Magazines & Newspapers heading offers both federated searching of Library databases and dimensions for accessing both print holdings and web-based items.

**Endeca Child Dimension Values**

- Revistas y Periódicos en Español – Represents the selection of "spa" Language dimension value to limit results to Spanish journals with a parent dimension value corresponding to "Magazines & Newspapers"
- Magazine & Newspaper Subjects
    - Not defined in Endeca. Subject listings are provided by Serials Solution's Article Linker.

**Available 1st Level Refinement Options**
Available dimension values are "Magazine & Newspaper" specific.

- Availability (same as Books)
- Location (same as Books)
- Format
  - Print Newspaper
  - Print Magazines
  - Online Journals
  - Microform
  - Microfiche
  - Microfilm
- Age Level
  - Adult
  - Children's
- Popular
  - Recently Added Titles

**Available 2nd Level Refinement Options**
Same as Books.

### *3.5 Images*

The Images heading offers a top level dimension for searching and browsing the Library's collection of print and digitized photographs.

**Endeca Child Dimension Values**

- Image Categories
  - Subject headings mapped to 650 subfield a. (Library defined)

**Available 1st Level Refinement Options**
Available dimension values are "Image" specific.

- Availability (same as Books)
- Location (same as Books)
- Format
  - Digital Reproductions
  - Slides
- Age Level (same as Books)
- Popular
  - Recently Added Photographs

### *3.6 Government Documents*

The Images heading offers a top level dimension for searching and browsing the Library's collection print and electronic government documents.

**Endeca Child Dimension Values**

- Document Categories
  - Library defined taxonomy. Not available day 1.

**Available 1st Level Refinement Options**

Dimension values are "Government Document" specific.

- Availability (same as Books)
- Location (same as Books)
- Format
  - Print Document
  - Online Document
- Age Level (same as Books)
- Popular
  - Recently Added Titles

### *3.7 Databases & Resource Guides*

This content heading is managed by a separate database, with database listings and topical resource guides.

### *3.8 Search*

Searching across Library materials is provided by one of 3 search utilities:

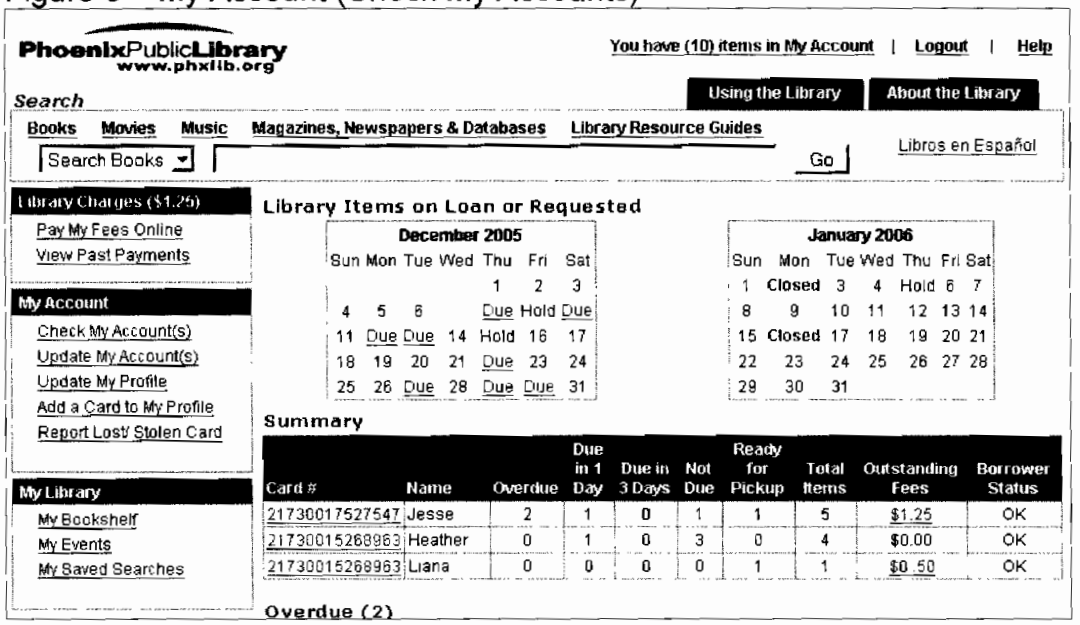
- Endeca – Provides searching and guided navigation of catalog materials
- WebFeat – Provides federated searching across subscription resources
- ArticleLinker – Provides searching of serials

The search header offers options specific to each dimension. The home page offers separate options for Programming and Library website searches. A "Search All" utility will be explored at a later date.

### *3.9 My Account*

My Account offers direct access to view related patron record(s) with a single online account. Different screens are offered to support online fee payment, account status, account updates and personalize accessed to catalog materials and Library services.

Figure 5 – My Account (Check My Accounts)



### 3.9.a Library Charges

Library Charges identify current charges associated with a patron account. Links to online fee payment and past payment history offer more options to pay selected fees and view past payments.

Figure 6 - Payment Process

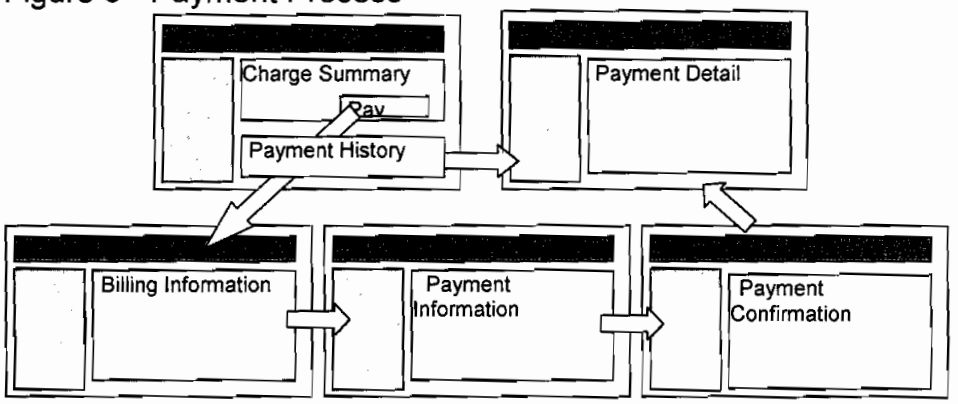



Figure 7 – Library Charge Summary

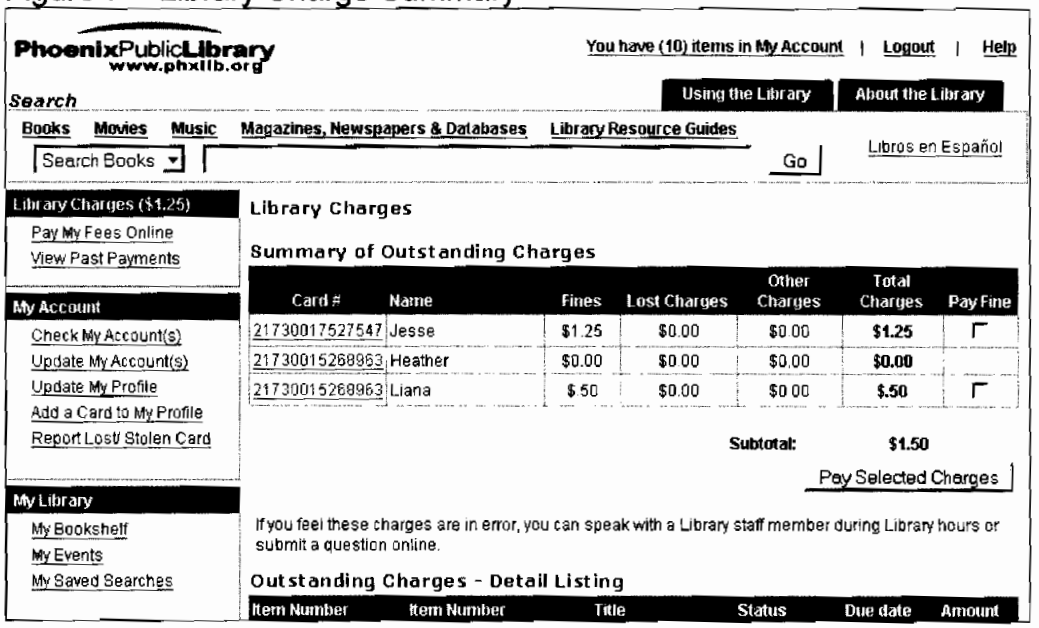


Figure 8 – Billing Information

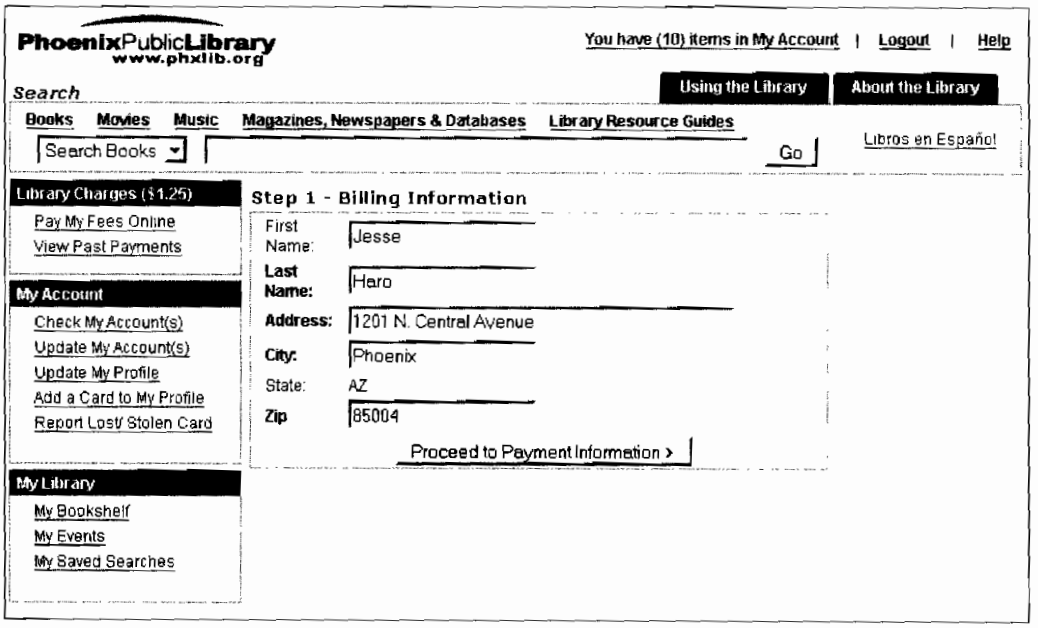


Figure 9 – Payment Information

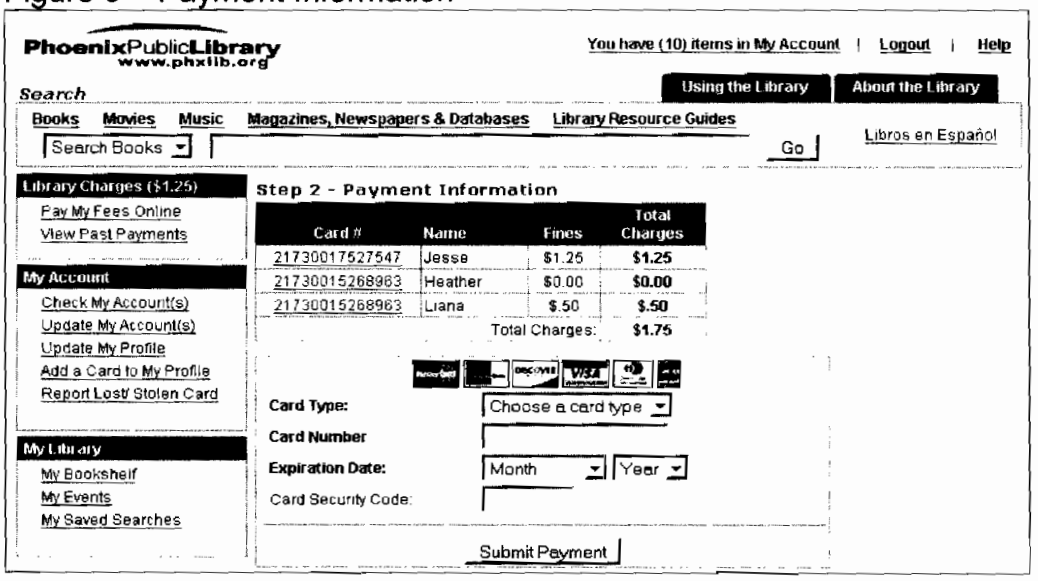
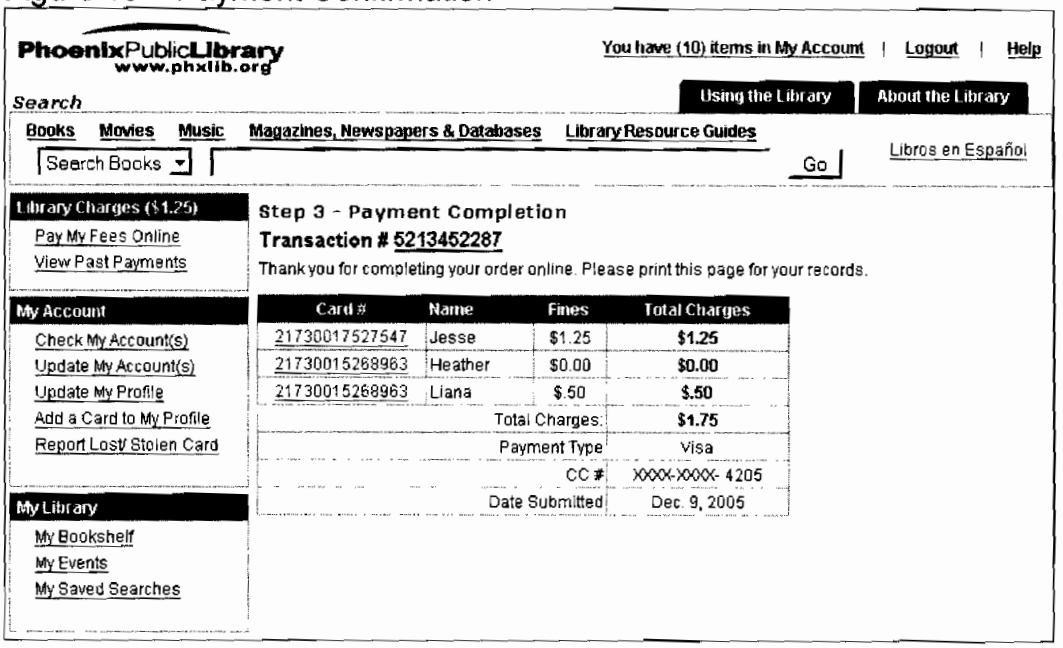



Figure 10 – Payment Confirmation




### 3.9.1 My Account

My Account offers options for accessing patron account(s) related to a single online account, including account updates; profile updates; and associating a Library record to a single account. See Section 4 for functional dependencies.

Figure 11 – Update My Account – Related Accounts

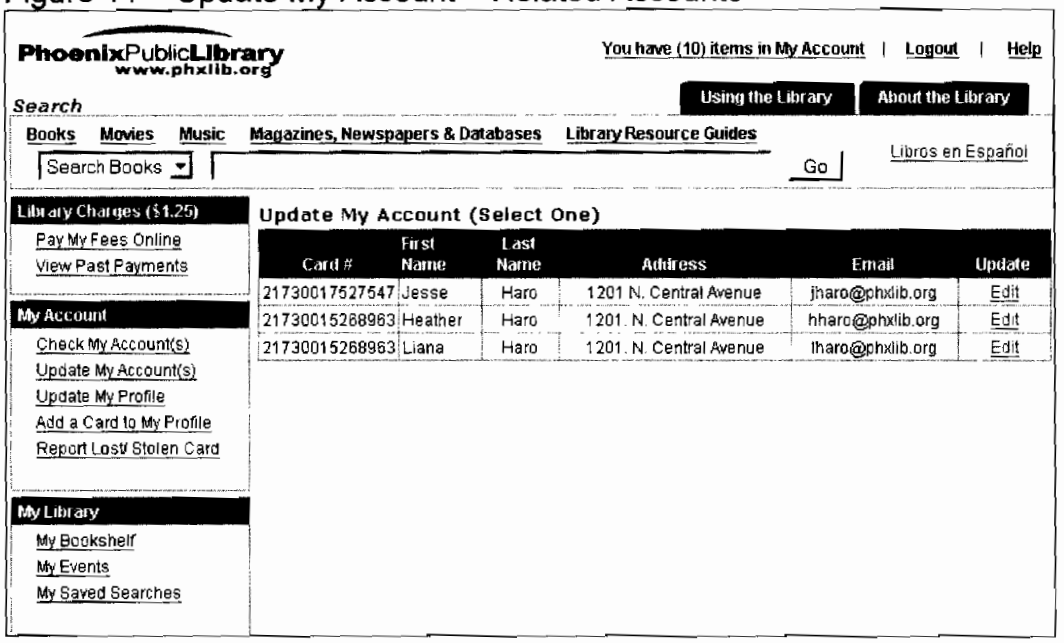



Figure 12 – Account Detail

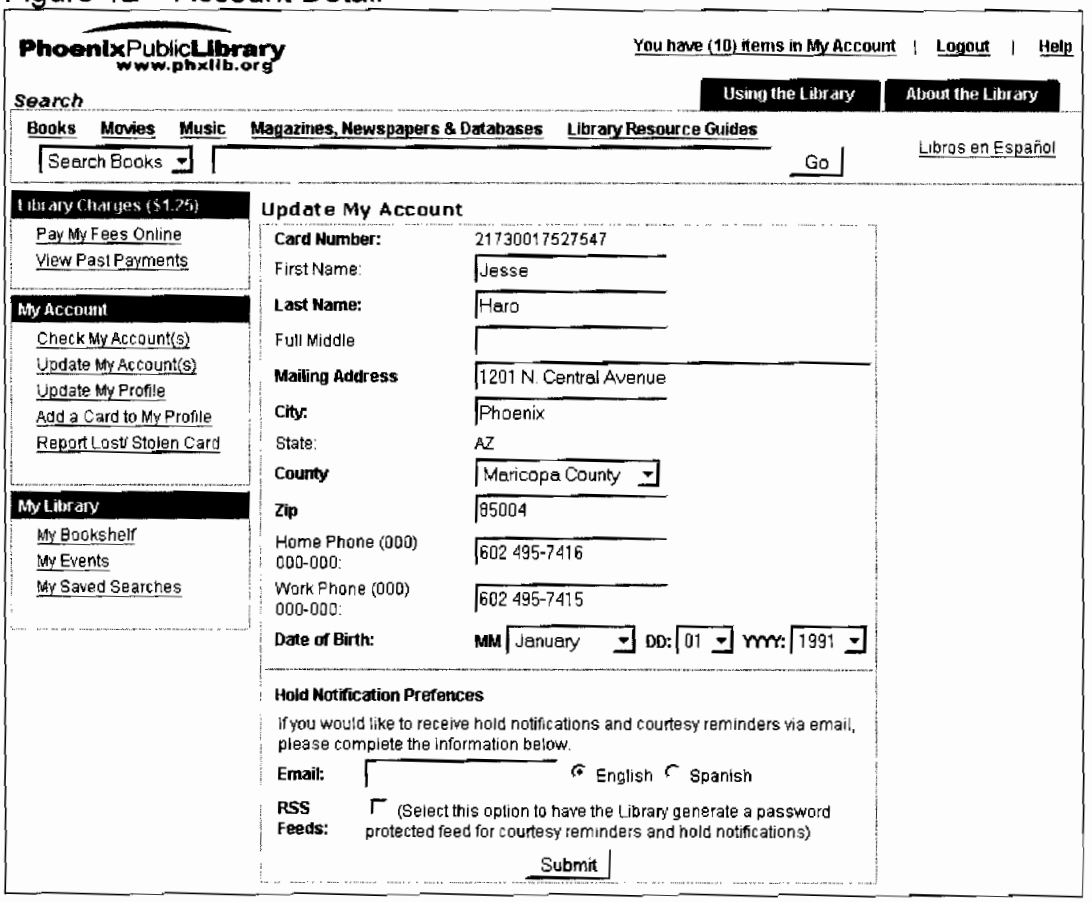
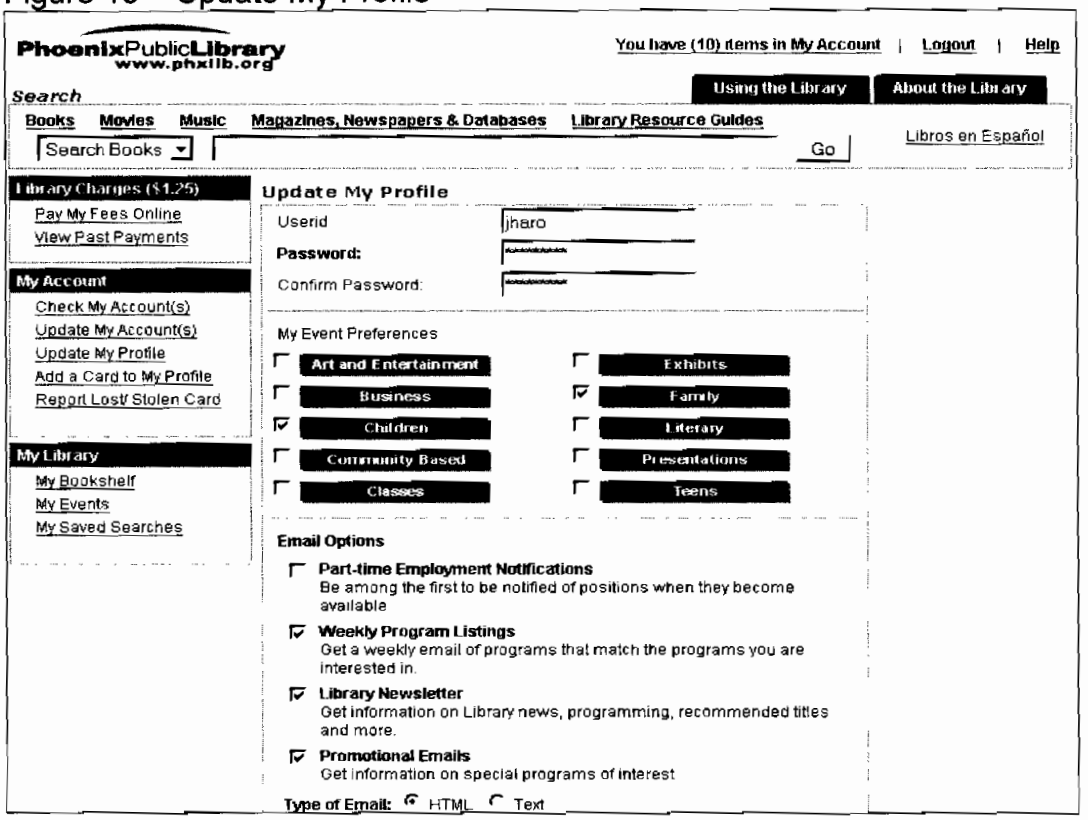


Figure 13 – Update My Profile




### 3.9.2 My Library

## *3.10 Login/ Register*

### 3.10.1 Library Card Registration

# Functional Requirements

## *3.11 Endeca Index – Baseline/ Incremental Updates*

*Description:* Baseline updates occur at daily intervals to incorporate changes in the bibliographic database into the Endeca index. The use of incremental updates will be explored to facilitate more timely changes.

*Technical Requirements:* A MARC dump with item level detail (as defined in Appendix A) is required at the specified interval for processing by the Endeca Data Foundry.

*Ongoing Maintenance:* The Library Corporation (TLC) is responsible for maintaining the process that creates the source data required by Endeca for creation of the index. The Library Information Systems Center (LISC) maintains responsibility for monitoring the forge process to ensure the proper creation of the index through any baseline/ incremental updates.

### *3.12 Guided Navigation*

#### 3.12.1 MARC to Endeca Mappings – Dimensions & Properties

*Description:* Endeca dimensions identify refinement options for use in guided navigation and make available properties that are used for searching, sorting and record display. Dimensions and property values are mapped to fields/subfields contained in the MARC record and item level data. See Appendix A for the full mapping schedule.

*Initial Fulfillment Requirements:* LISC/ Bibliographic Services/ TLC will define the initial mapping schedule.

*Technical Requirements:* Endeca mappings utilize the Endeca Developer Studio for Dimension and Property mappings. Changes to the Endeca index are maintained using the Endeca Developer Studio and will be maintained by LISC staff.

*Ongoing Maintenance:* Changes to FORMTERM rules must be reflected in the Dimension and Property mappings in the Endeca index and communicated to LISC & Bibliographic Services.

#### 3.12.2 Natural Language Subject Headings

*Description:* Natural language headings are represented as dimensions within the Endeca index and used for guided navigation for both browsing and searching the Library catalog. The Book Industry Standards and Communication (BISAC) Subject Codes are mapped to a record using the item call number. See Appendix B for the full Subject Code Call Number mapping schedule.

*Initial Fulfillment Requirements:* Bibliographic Services will define the initial mapping schedule. Although BISAC Subject Codes are utilized for a large segment of Fiction & Non-Fiction titles, AV titles and Government Documents records are mapped using a custom Library developed taxonomy.

*Technical Requirements:* The relationship between a bibliographic record and subject code is defined in the Endeca Developer Studio and exists only within the index. (Subject Codes DO NOT replace the subject heading fields in a bibliographic record and are not maintained in the bibliographic record.)

*Ongoing Maintenance:* Periodic changes to the BISAC subject codes must be reflected in the Dimension and Property mappings in the Endeca Index. Bibliographic Services maintain the responsibility for communicating changes to BISAC subject codes to LISC for incorporation into the index using the Endeca Developer Studio.

#### 3.12.3 Branch Highlighting (Item Availability)

*Description:* The use of an index for searching and guided navigation prevents the use of real-time item availability (Status = Checked In) as an initial query refinement. Accurate item status is provided only within the full record display.

*3.13 Searching Library Databases*

*3.14 Online Research and Library Resource Guides*

*3.15 Library Event Calendar*

*3.16 Personalization – My Account*

**3.16.1 Online Fee Payment**

**3.16.2 Updating My Library Record**

**3.16.3 Holds**

**3.16.4 Online Library Card Registrations**

**3.16.5 MyBookShelf**

**3.16.6 Online Room Reservations**

*3.17 Working at the Library – Job Postings*

*3.18 Online Summer Reading*

*3.19 Online Surveys/ Polls*

*3.20 Forum Discussion Groups/ Threads*

*3.21 Library Blogs*

*3.22 Promotional Emails*

*3.23 Content Syndication*

## 4 Site Administration

*4.1 Endeca Pipeline Administration*

*4.2 Content/ User Administration*

**4.2.1 Library Web Pages (CMS)**

**4.2.2 Staff Source Administration**

4.2.2.1 Library Resource Guides

4.2.2.2 Library Event Calendar

4.2.2.3 Personnel Vacancies

4.2.2.4 Patron Accounts

*4.3 Reporting*

#### 4.3.1 Library Databases

#### 4.3.2 Website Usage

#### 4.3.3 User Registrations

# 5 Appendices

## 5.1 MARC to Endeca Dimension/Property Mapping Schedule

| Endeca Dimension | Dimension Value | Endeca Property | Source Record | Source Values | Search | Comments |
|---|---|---|---|---|---|---|
| Item Type | Books | | 898=a | qBook | | |
| Item Type | Movies | | 000/06=g | qVideoCassette, qVideodisc | | |
| Item Type | Music | | 000/06=cdj | * Requires new/ modified FORMTERM rule to distinguish books on CD | | |
| Item Type | Magazines & Newspapers | | 898=a | qMagazine, qNewspaper | | |
| Item Type | Images | | 898=a | qPhotograph | | |
| Item Type | Government Documents | | 898=a | qGovernmentDocument | | |
| Books | Libros en Español | | 008/35-38=spa \|\| 041=a | Fixed field \|\| qSpanish (not found in formterms) | | |
| Books | Book Categories | | | | | |
| Movies | Películas en Español | | 008/35-38=spa \|\| 041=a | Fixed field \|\| qSpanish (not found in formterms) | | |
| Movies | Movie Categories | | | | | |
| Music | Música en Español | | 008/35-38=spa \|\| 041=a | Fixed field \|\| qSpanish (not found in formterms) | | |
| Music | Music Categories | | | | | |
| Magazines & Newspapers | Revistas y Periódicos en Español | | 008/35-38=spa \|\| 041=a | qSpanish and (qNewspaper or qMagazine or qSerial) but not (qeJOURNAL eJOURNAL ) | | |
| Government Documents | Document Categories | | | | | Not Day 1 |
| Images | Image Categories | | 650=a | Library defined subject headings | | |
| Book Categories | BISAC-Call # taxonomy | | 949 | Call # | | |
| Movie Categories | Call # taxonomy | | 949 | Call # (Fiction Genres + Non-Fiction) | | |
| Music Categories | Call # taxonomy | | 949 | Call # | | |
| Document Categories | Maps into Call # Taxonomy | | 949 | Call # | | |
| Availability | Checked In | | 949 | Checked in | | |
| Availability | On Order | | 949 | On Order | | |
| Availability | Featured Title | | 949 | ?? | | |
| Location | Branch Ownership | | 949=h | Branch code | | |

| Endeca Dimension | Dimension Value | Endeca Property | Source Record | Source Values | Search | Comments |
|---|---|---|---|---|---|---|
| Format | Books on CD | | 898=a | qCompactDisc | | |
| Format | Books on Cassette | | 898=a | qSpokenCassette | | |
| Format | Downloadable eBook | | 898=a | qaudioebook | | |
| Format | Large Print | | 898=a | qLarge Print | | |
| Format | Braille | | 898=a | qBraille | | |
| Format | Manuscript | | 898=a | qManuscript, qManuscriptReproduction | | |
| Format | Manuscript (Microform) | | 898=a | qMicroformManuscript | | |
| Format | VHS | | 898=a | qVideoCassette | | |
| Format | DVD | | 898=a | qVideodisc | | |
| Format | Streaming Video | | 898=a | Requires new FORMTERM rule. Not yet available. | | |
| Format | Audio Cassette | | 898=a | qMusicCassette | | |
| Format | CD | | 898=a | Requires modified FORMTERM to exclude books on CD | | |
| Format | LPs | | 898=a | qPhonographRecord | | |
| Format | Musical Score | | 898=a | qScore | | |
| Format | Vocal Score | | 898=a | qVocalScore | | |
| Format | Miniature Score | | 898=a | qMiniatureScore | | |
| Format | Print Newspaper | | 898=a | qNewspaper but not (qeJOURNAL eJOURNAL ) | | |
| Format | Print Magazines | | 898=a | (qMagazine or qSerial) but not (qeJOURNAL eJOURNAL ) | | |
| Format | Online Magazines, Journals & Newspapers | | 898=a | qeJournal eJournal but not (qGovernmentDocument) | | |
| Format | Microform | | 898=a | qMicroform | | |
| Format | Microfiche | | 898=a | qMicrofiche | | |
| Format | Microfilm | | 898=a | qMicrofilm | | |
| Format | Digital Reproductions | | 898=a | photograph qPhotograph | | |
| Format | Slides | | 898=a | qSlide | | |
| Format | Online Document | | 898=a | qGovernmentDocument qeJournal eJournal | | |
| Format | Print Document | | 898=a | qGovernmentDocument but not (qeJournal eJournal) | | |
| Age Level | Adult | | 008/22=d,e | qAdult | | |
| Age Level | Juvenile | | 008/22=c,d | qJuvenile | | |
| Age Level | Childrens | | 898=a | qChildrens,qChildren, qChildren'sBooks | | |
| Popular | New Fiction | | ???? | ???? | | |
| Popular | New Non-Fiction | | ???? | ???? | | |

| Endeca Dimension | Dimension Value | Endeca Property | Source Record | Source Values | Search | Comments |
|---|---|---|---|---|---|---|
| Popular | Most Borrowed | | ???? | ???? | | |
| Popular | Recently Added Titles | | ???? | ???? | | Recently added AV titles |
| Popular | Recently Added Images | | ???? | ???? | | |
| Series | Autogen | | 400=ap | | | Set up precedence rule for any of the item type dimensions |
| Series | Autogen | | 410=ap | | | |
| Series | Autogen | | 411=ap | | | |
| Series | Autogen | | 440=ap | | | |
| Series | Autogen | | 490=a | | | |
| Featured Authors | Autogen | | 100=ab, 110=ab, 111=ab,700=ab, 710=ab, 711=ab | | | Set up precedence rule for any of the item type dimensions |
| Geography | Autogen | | 650=z, 651a | | | Set up precedence rule for any of the item type dimensions |
| People of Interest | Autogen | | 600=a, 610=a | | | Set up precedence rule for any of the item type dimensions |
| Time Periods | Autogen | | 600=d | | | Set up precedence rule for any of the item type dimensions |
| Other Languages | Autogen | | 008/35-37 | | | Set up precedence rule for any of the item type dimensions |
| | | Control # | 910=a | | Y | |
| | | ISBN | 020=a | | Y | |
| | | Call # | 949 | | Y | |
| | | Title | 245=ab, 246=ab | | Y | |
| | | Author | 100=ab, 110=ab, 111=ab,700=ab, 710=ab, 711=ab | | Y | |
| | | Edition | 250=a | | N | |
| | | Publisher | 260=ab | | N | |
| | | Publication Year | 260=c | | N | |
| | | General Notes | 500=a | | N | |
| | | Content | 505=agtr | | Y | |
| | | Summary | 520=a | | Y | |
| | | Subjects | 610=v | | Y | |

| Endeca Dimension | Dimension Value | Endeca Property | Source Record | Source Values | Search | Comments |
|---|---|---|---|---|---|---|
| | | Subjects | 611=v | | Y | |
| | | Subjects | 650=v | | Y | |
| | | Subjects | 651=v | | Y | |
| | | Subjects | 655=v | | Y | |
| | | URL | 856=u | | N | |
| | | | | | | |
| | | | | | | |
| Sort by | | | | | | |
| | Author | | | | | |
| | Title | | | | | |
| | Location | | | | | |
| | Availability | | | | | |
| | Publication Year | | | | | |
| | Call # | | | | | |

# ATTACHMENT B

| Endeca Project Schedule - Engineering & User Acceptance Testing Phases | | | | | |
|---|---|---|---|---|---|
| Task Breakdown | | | | | |
| Phase / Task | Start Date | Finish Date | % Complete | Resp. | Comments |
| **ENGINEERING** | | | | | |
| **WEB DEVELOPMENT** | | | | | |
| **Searching** | | | | | |
| **Record List Display** | | | | | |
| Place Hold | 08/28/06 | 09/01/06 | | JH | |
| **Full Record Display** | | | | | |
| Place Hold | 08/28/06 | 09/01/06 | | JH | |
| **Browse Pages** | | | | | |
| **Library Spotlight Integration (all pages)** | | | | | |
| Admin Utility | - | | 0% | JH | |
| **Featured Titles/ Searches (all pages)** | | | | | |
| Admin Utility | - | | 0% | JH | |
| **Most Borrowed Report - Top 10 Integration** | | | | | |
| Report Generation | 08/15/06 | 08/21/06 | 100% | JL | |
| Data Scrub Program | 08/15/06 | 08/21/06 | 100% | JL | |
| Endeca CRONJOB Entry | 08/15/06 | 09/01/06 | 0% | JL | |
| Endeca Pipeline Integration | 09/05/06 | 09/15/06 | 0% | JH | |
| **Books** | | | | | |
| Pearl's Picks | 09/05/06 | 09/15/06 | 0% | JH | |
| Hot Topics Reading Lists | 09/05/06 | 09/15/06 | 0% | JH | |
| NY Times Best Sellers - Current | 09/05/06 | 09/15/06 | 0% | JH | |
| NY Times Best Sellers - Archive | 09/05/06 | 09/15/06 | 0% | JH | |
| Award Winners | 09/05/06 | 09/15/06 | 0% | JH | |
| **Movies** | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Set Up Movie Trailers Link | 09/05/06 | 09/15/06 | 0% | JH | |
| **Downloadable** | | | | | |
| Downloadable Video/ Music Form terms/ Endeca | 09/05/06 | 09/15/06 | 0% | JH | |
| eBook Support Links | 09/05/06 | 09/15/06 | 0% | JH | |
| **Magazines & Newspapers** | | | | | |
| Top 10 Journal Listings | 09/05/06 | 09/15/06 | 0% | JH | |
| **Research** | | | | | |
| Default Search to WebFeat | 09/05/06 | 09/15/06 | 0% | JH | |
| Library Research Guides | | | | | |
| Admin Utility | - | | 0% | JH | |
| Library Databases | | | | | |
| WebFeat UI Changes | 09/05/06 | 09/15/06 | 0% | JH | |
| Admin Utility - Database info | - | | 0% | JH | |
| **Patron Account** | | | | | |
| **Registration (Online Account)** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Pre-Registration (Library Card)** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Update Patron Record** | | | 0% | JH | |
| Admin Utility | - | | 0% | JH | |
| **My Library** | | | | | |
| My Events | 09/05/06 | 09/15/06 | 0% | JH | |
| **OPSS Integration** | | | | | |
| SIP2 Configuration | 08/21/06 | 09/15/06 | 25% | JL | |
| Install OPSS Server | 08/21/06 | 08/26/06 | 100% | JH | |
| XML Persistence utility | 08/23/06 | 08/23/06 | 100% | JH | |
| Patron Account Summary w/ Charges | 08/28/06 | | | JH | |
| Calendar view | 08/24/06 | 08/25/06 | 100% | JH | |
| Renew Items | 08/28/06 | 09/01/06 | 90% | JH | |
| Renew All Items | 08/28/06 | 09/01/06 | 90% | JH | |
| Patron Overdues | 08/28/06 | 09/01/06 | 90% | JH | |
| Patron Holds | 08/28/06 | 09/01/06 | 90% | JH | |
| Patron Hold Requests | 08/28/06 | 09/01/06 | 90% | JH | **Position on Holds List not available** |

| | | | | | |
|---|---|---|---|---|---|
| Cancel Holds | 08/28/06 | 09/01/06 | 90% | JH | |
| Patron Lost | 08/28/06 | 09/01/06 | 90% | JH | **No Displaying in OPSS** |
| Patron Fee Summary | 08/28/06 | 09/01/06 | 90% | JH | |
| Patron Record Information | 08/28/06 | 09/01/06 | 90% | JH | |
| **Content Migration** | | | | | |
| **Library Event Calendar** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Branch Locations** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Business Resources** | | | | | |
| **Senior Living** | | | | | |
| **Library Services** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Ask a Librarian** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Contact Us** | 09/05/06 | 09/15/06 | 0% | JH | |
| **About the Library** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Helping the Library** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Closures** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Arizona Room** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Bond Projects** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Other Libraries** | | | | | |
| **Internet Filtering Requests** | | | | | |
| **Email Subscriptions/ Rate this Page** | | | | | |
| **Library Downloads** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Webdav** | 09/05/06 | 09/15/06 | 0% | JH | |
| **Content Enhancement** | | | | | |
| **Promotion Plan/ Audit** | | | 0% | CH, MM | |
| **Cover Art** | | | | | |
| Bibliographic Database Update w/ UPC Codes | 09/05/06 | 09/15/06 | 0% | AM, RM | |
| Display of Cover Art using UPC codes to Syndetics | 09/05/06 | 09/15/06 | 0% | JH | |
| **Library Booklists (Dear Reader)** | | | | | |
| Content Integration | 09/05/06 | 09/15/06 | 0% | JH | |
| Email Subscription Integration | - | - | 0% | JH | |
| Administration Integration w/ Staff Source | - | - | 0% | JH | |
| | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **ENDECA INTEGRATION** | | | | | | |
| | **MARCOUT** | | | | | |
| | | **Weekly Full Marcout** | 08/01/06 | 08/15/06 | 100% | CR |
| | | **Nightly Marcout** | 08/01/06 | 08/15/06 | 100% | CR |
| | | **Automate running of Conversion Programs (Incremental)** | 08/01/06 | 09/01/06 | 90% | JL |
| | **Migrate Server to Control Scripts** | | | | | |
| | | **Automate Nightly Forge Process** | 08/04/06 | 09/15/06 | 0% | PH, AM |
| | | **Load Balance HTTP across 2 Nav Engines** | 08/04/06 | 09/15/06 | 0% | PH, MG, AM |
| | | **Enable Logging** | 08/04/06 | 09/15/06 | 0% | PH, AM |
| | **Pipeline Management** | | | | | |
| | | **BISAC Integration** | | | | |
| | | | BISAC Update to 2.9 | 09/05/06 | 09/15/06 | 0% | JH |
| | | **Integrate Partial Marcouts into Endeca Index** | 09/05/06 | 09/15/06 | 0% | JH |
| | | **Most Borrowed CIRC Report** | | | | |
| | | | Automate conversion program | 09/05/06 | 09/15/06 | 0% | JL |
| | | | Integrate into Endeca Index | 09/05/06 | 09/15/06 | 0% | JH |
| | **Display of CJK** | | 09/05/06 | 09/15/06 | 0% | JH |
| | | | | | | |
| **USER ACCEPTANCE TESTING** | | | | | | |
| | **TESTING** | | | | | |
| | | **Staff Testing of functionality** | 09/18/06 | 09/29/06 | | JH |
| | | **Usability Testing** | 09/18/06 | 09/29/06 | | AM |
| | | **Staff Familiarization** | 09/18/06 | 09/29/06 | | |
| | | **Load Testing** | 09/05/06 | 09/15/06 | | JH |
| | **SURVEY** | | | | | |
| | | **Public Opinion Survey** | 09/18/06 | 09/29/06 | | JH |
| | **REVISIONS** | | 10/02/06 | 10/06/06 | | JH |
| | | | | | | |
| **SITE LAUNCH** | | | | | | |
| | | **Communication Plan** | 09/11/06 | 09/15/06 | | CH, AM, RM, JH, MM |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Staff Training** | | | | JH, AM, KN, CH, MM | |
| **Contact Us** | 09/18/06 | 09/29/06 | | | |
| **Tel Ref** | 09/18/06 | 09/29/06 | | | |
| **Contact Circ** | 09/18/06 | 09/29/06 | | | |
| **General Staff** | 09/18/06 | 09/29/06 | | | |
| **Endeca Training** | | | | PH, CR, JL, JH, KN, AM, TC | |
| **EST, Help desk training** | 09/18/06 | 09/29/06 | | JH, PH, TC, AM | |
| **Documentation** | 10/01/06 | 10/15/06 | | JH | |
| **Soft Launch** | | | | JH | |
| **DNS Entries** | 09/18/06 | 09/29/06 | | MG | |
| **Network Changes** | 09/18/06 | 09/29/06 | | MG | |
| **Server Backups** | 09/18/06 | 09/29/06 | | TC | |
| **Make Site Available from Home page** | 10/02/06 | 10/06/06 | | | |
| **Site Cutover** | 10/09/06 | 10/13/06 | | | |
| | | | | | |
| | | | | | |
| **PROJECT SUMMARY** | | | | | |
| **ENGINEERING** | | | | | |
| **Web Development** | **08/21/06** | **09/15/06** | | | |
| **Endeca Integration** | **08/01/06** | **09/15/06** | | | |
| **USER ACCEPTANCE TESTING** | **09/18/06** | **09/29/06** | | | |
| **SITE LAUNCH** | | | | | |
| **SOFT LAUNCH** | **10/02/06** | **10/06/06** | | | |
| **CUTOVER** | **?** | **?** | | | |

McMaster University
Jeff Trzeciak

1. Description of the community

Hamilton is the fourth largest city in Ontario, and the ninth largest in Canada. It is ranked as one of the top 10 places to do business in Canada. McMaster University is the fifth largest employer in the Greater Hamilton area (City of Hamilton), with more than 7,500 employees (May 2008) McMaster's operating costs benefit economic growth in the community, through the use of local businesses and suppliers. More than 60 per cent of McMaster's 19,500 full-time students come from outside the City of Hamilton and bring increased revenue to Hamilton area businesses through consumer spending (November 2006) McMaster University is the major knowledge generator in the Hamilton region, providing both the human capital and the research output necessary to fuel the region's economy

2. # of people in community (town, college, university)

Slightly over ½ million

3. Size of library staff

Approximately 130. Roughly 1/3 professional staff and 2/3 paraprofessional.

4. Size of library systems department (total # and FTE)

15 FTE

5. Size of parent organization IT department (total # and FTE)

App 200 FTE

6. Does the library interact regularly with the parent organization IT, depend on them, etc.

Yes

7. What kinds of services does the IT department typically provide for the library?

Primarily networking (including wireless) and security (including anti virus).

8. Would you consider the IT department very innovative, at the cutting edge?

Not at all. Very traditional. However, in transition with a new CIO.

9. Describe the projects/products development from inception to the point of implementation

McMaster University Library was the first in Canada to choose Endeca for our discovery layer for our catalog. The project was conceived by and implemented by the library with no involvement from central IT. (We manage all of our IT implementation). Here is the announcement: http://ulatmac.wordpress.com/2007/03/25/mcmaster-launches-endeca-interface/

10. Why did you select this particular technology over other products?

The decision was based on the NCSU success. At the time there were no other implementations of Endeca in Canada.

11. What was the inspiration for the project? (See answer to #10)

12. Did the project come about due to knowledge of a new technology/software?

Yes. The desire to offer faceted browsing to our users.

13. (or) Was this an idea in search of the software/technology to do it?

14. Was this an outcome of one individual or a team project or something else? Please describe.

It was team-managed.

15. How would you describe your community in terms of their degree of comfort and acceptance of new technologies?

It varies. I would say that they are generally receptive.

16. Do you think there are factors that made them more amenable to this technology/service?

Ease of use.

17. What have been their reactions?

Overwhelmingly positive.

18. What was the role of the town or university IT department on this product/project?

None. Solely the library.

19. (or) Was this more due to the efforts of the library systems office?

20. Was this project really library driven or IT driven?

User driven. Our previous catalogue was less than satisfactory.

21. How did you get use input into this product / project?

We ran a pilot with our users.

22. How did that input change the product/project?

New functions/features are being added all of the time such as links to Amazon.

23. How does this product benefit your community?

Provides ease of searching of our catalogue.

24. How many iterations of this project did you try out before offering it to your users?

We had a pretty quick timeline (3 months) but during that time we did involve users. It continues to change based on their needs.

25. What challenges and failures were encountered that may or my not have eventually led to success?

None that I'm aware of. Since our decision Toronto and Ottawa have selected it as well.

26. Is this product considered complete or in a maintenance mode, or is it sill in development?

Still in development

27. Would you do this again if you were doing it today, why/why not?

Yes. Not only did it result in local success it has now been adopted more widely and may in fact become a sort of union catalog for Ontario.

MyLibrary - Eric Lease Morgan
Notre Dame Uuniversity

1. Description of the community - The University of Notre Dame community is a research university located in Notre Dame, Indiana. It hosts an ARL library complete with 3.5 million volumes.

2. # of people in community (town, college, university) - There are about 15,000 poeple who are a part of the University (10,000 students, 750 faculty, the balance are staff). The MyLibrary community mailing list includes 155 people.

3. Size of library staff - The University staff includes roughly 200 people (50 librarians, 100 staff, and 50 students).

4. Size of library systems department (total # and FTE) - The "systems" department presently includes 7 people, but the department supporting MyLibrary includes 5. The entire "computer" division of the library includes roughly 50 people.

5. Size of parent organization IT department (total # and FTE) - The University's IT department includes roughly 125 people.

6. Does the library interact regularly with the parent organization IT, depend on them, etc. - Yes the library regularly interacts with the parent IT organization because the IT organization physically houses some of our hardware. There are also regular meetings but these meetings are not library-specific. The Library depends on them for low-level infrastructure support.

7. What kinds of services does the IT department typically provide for the library? - The IT department houses some of our hardware (providing power, cooling, and network connections). They also support campus-wide emailing, disk storage, etc.

8. Would you consider the IT department very innovative, at the cutting edge? - In a word, no. There are few programmers there and I see very litte experimentation coming out of their shop.

9. Describe the projects/products development from inception to the point of implementation. - That is a very long story. Get a list of MyLibrary articles and texts written by myself, http://tinyurl.com/6kae2a But in a nutshell, the system was developed in 1997 when various "my" services were popular. At that time it was a turn-key application. At its peak there were about two dozen implementations all over the world. Since 2003 or so, it is less of turn-key application and more of an object-oriented collection of Perl modules.

10. Why did you select this particular technology over other products? - We created this application because is "scratched" an itch. We needed/wanted a tool allowing librarians to select and suggest information resources for patrons in order to save the patrons' time.

11. What was the inspiration for the project? - The inspiration were the various "my" projects of the late 1990's: MyNetscape, MyYahoo, My DejaNews, etc.

12. Did the project come about due to knowledge of a new technology/software? - No, not really. The system is/was built with Perl and MySQL.

13. (or) Was this an idea in search of the software/technology to do it? - No, not this either. If I understand the question correctly, we built this software ourselves; we did not acquire it one way or another.

14. Was this an outcome of one individual or a team project or something else? Please describe.

15. How would you describe your community in terms of their degree of comfort and acceptance of new technologies? - The outcome was definitly a team effort.

16. Do you think there are factors that made them more amenable to this technology/service? - Yes, there are many factors. One is creativity. It would not be possible for anyone to think up the idea and elaborate upon it without creativity. Second, there is need to understand the roles and purposes of librarianship. Third, there is/was a need to understand how to write computer programs -- Perl, in this case. Third, there was a need to understand how to design and implement relational databases. "Librarians love lists, and lists are best manifested in a digital environment in databases."

17. What have been their reactions? - Who is "their"? Patrons? With the original MyLibrary, reactions were meager. Few people desired to customize their pages. It was scary and the user interface to the application was not as usable as it should have been. In the more modern version where we use it to implement various digital library services, patrons do not use it directly and so there is no reaction.

18. What was the role of the town or university IT department on this product/project? - None. They do not participate in any way.

19. (or) Was this more due to the efforts of the library systems office? - Originaly, the work was done by an research & development department of the NC State University Libraries. Presently it is primarily supported by the department primarily responsible for the University's library website, not the systems department.

20. Was this project really library driven or IT driven? - It was definitly library-driven.

21. How did you get use input into this product / project? - Over the course of development and implementation, we have gotten input from ourselves, our peers, mailing lists, usability studies, and surveys.

22. How did that input change the product/project? - This input helped shape features, implementation, design, and priorities.

23. How does this product benefit your community? - MyLibrary makes it easy for us to implement our database-driven website. It has made it easy to implement a number of other applications. In turn, we believe we have been able to better facilitate the learning, teaching, and research needs of the University.

24. How many iterations of this project did you try out before offering it to your users? - Too many to count. ;-)

25. What challenges and failures were encountered that may or my not have eventually led to success? - The challenges were mostly communication-related. Many of our fellow librarians do not know enough be what computer can and can not do in order to discuss the possibilities. The concepts of relational database design, indexing, "crowdsourcing", the ease or difficulting of writing computer programs are all seemingly magic to them. They have little context and therefore have little understanding of what is possible or not.

26. Is this product considered complete or in a maintenance mode, or is it sill in development? - This project is definitely in maintenance mode; development is on-going.

27. Would you do this again if you were doing it today, why/why not? - Yes, I would do it again today, but I'm not really sure I would it differently.

--
Eric Lease Morgan
September 6, 2008

Note from Scott P. Muir - this response was sent as text and was converted by me to MS Word format for consistency with the other survey responses. A copy of the original formatting is available in electronic format. It does not lend itself to printing.

University of Virginia
Blacklight - Bess Sadler

1. **Description of the community**

I'm not sure what you mean by community. I work at the University of Virginia Library. UVA is a public university, but one with a long history and a generous endowment, which often makes it feel more like a private institution. There's definitely a sense of history here and everyone venerates Thomas Jefferson, the founder of the university. It's a very competitive university, with about 35% of applicants accepted.

2. **# of people in community (town, college, university)**

Do you mean the town where my institution is located? Charlottesville the town has 45,049 as of the last census, with around 100,000 people in the surrounding county. The University has about 13,000 undergraduates, 4800 graduate students, and 1700 professional or other kinds of students.

3. **Size of library staff**

The university library has about 230 full-time staff, plus student workers, temporary workers, post-doctoral fellows, and a variety of research institutes that are house in the library

4. **Size of library systems department (total # and FTE)**

10 people, but these aren't the people implementing the Blacklight project. We have about ten people doing network and desktop support, plus two people in a different department supporting the ILS, plus four people in my department working on Blacklight.

5. **Size of parent organization IT department (total # and FTE)**

Sorry, I have no idea how big UVA's ITC department is. Their website is http://www.itc.virginia.edu. Maybe you could call someone?

6. **Does the library interact regularly with the parent organization IT, depend on them, etc.**

We depend on them to provide the campus network, but not for much aside from that. They're pretty dysfunctional, which is why we do most of our own IT support.

7. **What kinds of services does the IT department typically provide for the library?**

Do you mean the library IT department or the campus IT department? The library IT department provides desktop support, server hardware support, network and printing support, and virtual machines for use by software developers. They also maintain some core services such as our subversion repository.

8. **Would you consider the IT department very innovative, at the cutting edge?**

Yes.

9. **Describe the projects/products development from inception to the point of implementation**

Blacklight is an open-source OPAC. Like many libraries, we've been unhappy with our commercially purchased OPAC, because it is unattractive, difficult to use, and difficult to customize. Additionally, we have a huge collection of digitized materials that could not easily be made searchable through the commercial OPAC. To solve this, I and my software development team created an open source project called Blacklight. You can read more about it at http://blacklight.rubyforge.org.

10. **Why did you select this particular technology over other products?**

There are no other products that do what we're trying to do. The closest analogues would be vufind (http://www.vufind.org), but it does not easily handle many types of objects, or libraryfind (http://www.libraryfind.org), but at the time we started this project they were using ferret, not solr, and we really wanted to use solr.

**11. What was the inspiration for the project?**

Browsing stacks is often cited as users' favorite and most serendipitous method of interacting with library collections, but our online tools haven't yet been able to replicate that browsing experience. Additionally, our users are regularly frustrated by not being able to find anything in our catalog, largely because they expect relevance ranking in their results (because that's the way internet search engines behave) but our commercial OPAC does not provide relevance ranking of results. Also, our library has a huge number of digital objects that have never been findable. Finally we reached a critical mass of frustration and decided to solve the problem ourselves.

12. Did the project come about due to knowledge of a new technology/software?

Sort of. Open source searching and indexing tools such as lucene and solr had been getting easier to use and support. I had been working with them for some time, and when I started to see the kinds of applications people were using them for I started wondering why we couldn't do the same thing with our library catalog.

13. (or) Was this an idea in search of the software/technology to do it?

**14. Was this an outcome of one individual or a team project or something else? Please describe.**

This started out largely as my individual crusade, but it quickly became a grassroots movement. At first we received significant resistance from the library's

administration, but after awhile they came around to our side too. Implementation has been almost entirely the work of my software development team.

**15. How would you describe your community in terms of their degree of comfort and acceptance of new technologies?**

Generally, there is a reluctance to accept new technologies. People have been disappointed many times, and are hesitant to trust in promises. I've tried to overcome this by giving people hands-on demonstrations of what the tool can do now, not asking them to wait for what it might be able to do in a year or two.

16. **Do you think there are factors that made them more amenable to this technology/service**?

People had reached a terrible level of frustration, and this tool genuinely solves many of their long-standing problems.

**17. What have been their reactions?**

Almost entirely positive, once they were able to play with a demo.

18. **What was the role of the town or university IT department on this product/project**?

They have played no role.

19. (or) Was this more due to the efforts of the library systems office?

**The library systems office hasn't really played a role yet either, although now they are starting to re-tool so we'll be able to roll this service out as a production replacement for our OPAC.**

20. Was this project really library driven or IT driven?

Library driven.

21. How did you get use input into this product / project?

We have a feedback form on the website, and a usability committee that has conducted several rounds of more formal usability testing, both generally and with specific populations.

22. How did that input change the product/project?

**23. How does this product benefit your community?**

It's easier to find items in our collection; portions of our collection that were never searchable before are now available; our staff morale has improved because people are saying nice things about us instead of complaining quite as much.

24. How many iterations of this project did you try out before offering it to your users?

Lots. We update weekly, so I couldn't really count the iterations. Software development doesn't work that way for us.

25. What challenges and failures were encountered that may or my not have eventually led to success?

**26. Is this product considered complete or in a maintenance mode, or is it sill in development?**

I don't believe that projects like this are ever complete. We'll always be thinking of new ways to enhance it. It hasn't yet replaced our commercial OPAC, but it will by this coming fall.

**27. Would you do this again if you were doing it today, why/why not?**

I would absolutely do it again. It's been a great success, lots of fun, and it has gotten us attention and it's been a great learning experience.

Brown University
easyBorrow - Jean Rainwater

1. Description of the community

   Brown is a University-College made up of three schools: Undergraduate College, Graduate School, and Medical School. Brown students represent all 50 states and many foreign countries. For 2010, more than 18,000 applicants applied for 1,450 places in the freshman class. All undergraduates were admitted under a need-blind admission policy.

   Brown's three schools offer nearly 100 programs of study. The University adheres to a collaborative university-college model in which faculty are as committed to teaching as they are to research, embracing a curriculum that requires students to be architects of their education.

   The current student to faculty ratio stands at 9 to 1. Through the Plan for Academic Enrichment, the University is in the process of hiring 100 new faculty members.

   Brown's campus is composed of 238 buildings and sits on 143 acres in Providence, the capital of Rhode Island. The University library system contains more than 6,000,000 items, including bound volumes, periodicals, maps, sheet music and manuscripts.

2. # of people in community (town, college, university)

   Enrollment: 8,025
   Undergrad - 5,821; Grad - 1,834; Medical - 370
   Faculty: 745
   Staff: 1,149
   Providence population - 172,459

3. Size of library staff

   158

4. Size of library systems department (total # and FTE)

   18 (17 FTE)
   *Integrated Technology Services (ITS)* is responsible for the Center for Digital Initiatives (production of digital materials, digitization of signature

collections, consultative services for digital projects), database and programming services, software support and development, Library website, usability testing, outreach and instructional design, Library OPAC, Library technology infrastructure and staff technology training and support. The department is organized into five functional areas -- architecture and programming, digital production services, technology training and systems support, user research and interface services, and web applications.

5. Size of parent organization IT department (total # and FTE)

   168 total (don't know FTE)
   Parent organization IT is *Computing & Information Services (CIS)*

6. Does the library interact regularly with the parent organization IT, depend on them, etc.

   Library ITS and CIS meet regularly at the senior leader and department/unit head levels; other staff meet often on joint projects and issues. The library initiated and hosts a bimonthly Brown Internet Programmers Group which CIS programmers regularly attend.

7. What kinds of services does the IT department typically provide for the library?

   Provide basic systems administration and back-up services for UNIX machines. Install, configure, and maintain software upgrades on UNIX machines running EZProxy, SFX, MetaLib, and other vendor software.

8. Would you consider the IT department very innovative, at the cutting edge?

   no

9. Describe the projects/products development from inception to the point of implementation

   Libraries face a daunting challenge in trying to make the resources and services they offer simple for users to discover and navigate. The Brown University Library participates in three consortial borrowing systems which have vastly increased the volume of material available to our users. Complexity and confusion are unwanted by-products of this increased wealth; different proprietary systems with different interfaces, authentication methods, renewal policies, and the necessity to re-key

searches in each system. Not only is this arrangement inconvenient for users, it also results in a significant percentage of requests going to the service that provides the item most slowly, and that is most costly for the Library.

Our solution, currently called *easyBorrow*, is a locally developed system which was launched in beta version in June, 2007. The system uses WorldCat as the starting point for locating a desired item. When a user clicks "Request this item", the system first performs a lookup in our OPAC, checking location and availability. If a circulating copy is available, the user is redirected to the OPAC record. If no copy is available, the user is directed to an authentication screen and places his or her request. The *easyBorrow* system displays a message that the request was accepted and that an email with details will follow shortly. Behind the scenes, the *easyBorrow* system queries and attempts to place the user's request
in the most appropriate service. If the request cannot be placed in the first system, it will try the second and third if necessary; if still not found, the request will go to our Interlibrary Loan service (ILLiad), automatically registering new users. Requests and results are recorded in a database that can be viewed by staff should a problem arise; this database gives us the ability to analyze and report on all of our borrowing activity via a single interface. Users can also access this data to track all of their requests in a single interface.

Our service-oriented-architecture allows others to adapt components of the open-source code. Our implementation uses PHP, Tomcat, and Django to build a dozen web-APIs coordinated by a Python script; a Java layer manages tunneling into the various services.

10. Why did you select this particular technology over other products?

There was no ready-made product which would tie together these different proprietary systems. This project provided us with an opportunity to use service-oriented-architecture principles.

11. What was the inspiration for the project?

A new University Librarian heard frequent complaints about the difficulty of navigating these multiple services and made it clear that fixing this was a high priority. She met regularly with the team to hear progress reports and provided any support the team needed.

12. Did the project come about due to knowledge of a new technology/software?

no

13. (or) Was this an idea in search of the software/technology to do it?

yes

14. Was this an outcome of one individual or a team project or something else? Please describe.

This was a team project requiring the functional expertise of our ILS and resource sharing managers and programmers skilled in java, php, mysql, and django.

15. How would you describe your community in terms of their degree of comfort and acceptance of new technologies?

The community is generally comfortable with new technologies that create efficiencies.

16. Do you think there are factors that made them more amenable to this technology/service?

This was a technology that users didn't have to learn. Anyone using worldcat to request books was automatically passed to easyBorrow.

17. What have been their reactions?

In our user satisfaction survey, 92% of users said it was easy to use, 93% had a good to excellent experience.

Comments included:
"Absolutely terrific!" - Visiting Scholar

"It's a god-send because often the books I need are missing or checked out! It's quick enough too."
- Grad Student

"It was easy to find the titles I wanted, and I received
my book very promptly- sooner than I had expected!
I was surprised and very pleased with this service."
- Undergrad

"It is almost TOO easy..." - Brown Faculty

18. What was the role of the town or university IT department on this product/project?

none

19. (or) Was this more due to the efforts of the library systems office?

This was totally a library effort

20. Was this project really library driven or IT driven?

Totally library driven

21. How did you get use input into this product / project?

We did a user satisfaction survey (see above). We track usage statistics for all aspects of the service in a MySQL database. We've seen a 40% increase in Fall 2008 from Fall 2007 usage.

22. How did that input change the product/project?

We added the ability for users to track their easyBorrow requests from their library account.

23. How does this product benefit your community?

It makes it much easier to request books from other libraries without having to search and enter data multiple times.

24. How many iterations of this project did you try out before offering it to your users?

We went live with a beta version in June 2007. At that time we had only 3 of the 4 services tied in; We added the fourth in September 2007

25. What challenges and failures were encountered that may or my not have eventually led to success?

It was a challenge to integrate multiple proprietary systems into a single service. We could not have accomplished this if we did not have our own programming staff.

26. Is this product considered complete or in a maintenance mode, or is it sill in development?

Maintenance mode with a list of enhancement requests

27. Would you do this again if you were doing it today, why/why not?

Yes! It's a great service for users. It gave our programming staff a chance to work in a s-o-a environment and get familiar with django.

Georgetown University
ShareStream - Beth Marhanka

1. Description of the community

From http://explore.georgetown.edu/documents/?DocumentID=742

" Founded in 1789, the same year the U.S. Constitution took effect, Georgetown is the nation's oldest Catholic university. What began as Georgetown College, a small gathering of 12 students and a handful of professors, has grown into a major international university that includes four undergraduate schools, respected graduate programs, a law school and a medical school. The vision of Georgetown founder John Carroll, S.J., still guides the university in its commitment to Catholic, Jesuit education in the liberal arts tradition, with respect for diversity and open dialogue in the pursuit of truth."

2. # of people in community (town, college, university)

   Faculty-689

   Students – 14,148

See http://explore.georgetown.edu/documents/?DocumentID=742

3. Size of library staff

   Currently 99 staff employeed

   Size of library systems department (total # and FTE)
   7 FTE (2 vacancies currently)
   http://www12.georgetown.edu/library/staff/index.cfm?Action=ListEmployeesByDepartment&DeptID=26

4. Size of parent organization IT department (total # and FTE)

   There is a University Information Services, but the Library IT dept. does not report to them. See "About UIS" http://uis.georgetown.edu/about.html

5. Does the library interact regularly with the parent organization IT, depend on them, etc.

   Although the Library IT dept. doesn't report to UIS, they do work collaboratively

with them on networking, authentication, wireless connectivity, and the imaging of some Library open terminals.

6. What kinds of services does the IT department typically provide for the library?

see #6

7. Would you consider the IT department very innovative, at the cutting edge?

Not really. Library IT is severely understaffed. Maintaining desktop and public computers and keeping the catalog and web site up keeps them quite busy. Georgetown University is also very conservative and UIS doesn't tend to be proactive or cutting edge. It also doesn't help that we don't have an engineering school. Our computer science dept is terribly small and doesn't provide the university with the kind of student pool of workers many schools use to provide additional staffing.

8. Describe the projects/products development from inception to the point of implementation

The Georgetown University Media Service began back in Jan 2004 when GU was approached by a startup company, Sharestream. GU's UIS made an agreement with Sharestream that we would develop the functional requirements for a streaming media service if they provided the programming team. The pilot was introduced in the Fall of 05. We don't have all of our dates mapped out, so I'm not sure of all the roll out dates.

9. Why did you select this particular technology over other products?

There was no funding required. The only resources needed from Georgetown University were our time and expertise. We've been able to dedicate some time (wish it could be more), but we did not have funding at our disposal. Other products researched at the time were costly and unaffordable.

10. What was the inspiration for the project?

We did not have a reliable way to stream media for courses or any other University content. A few streaming servers existed under peoples' desks, but they weren't reliable or scalable to the whole community. The Library had a Cisco server in service from 2002-2004, but Cisco stopped supporting it so we had to take it down.

11. Did the project come about due to knowledge of a new technology/software?

Sort of. We knew we needed to have the ability to stream media and the expertise to build and maintain a streaming server does not exist on our campus.

12. (or) Was this an idea in search of the software/technology to do it?

Yes. We knew that getting a streaming server up and running was possible, but we didn't have the staff time or expertise to do it ourselves.

13. Was this an outcome of one individual or a team project or something else? Please describe.

This was very much a team effort with members from the main campus library, medical library, Center for New Designs in Learning and Scholarship, University Information Services and the startup company responsible for the programming and system development.

14. How would you describe your community in terms of their degree of comfort and acceptance of new technologies?

A little on the slow side. With a technology like a streaming server, the demand increased quickly though.

15. Do you think there are factors that made them more amenable to this technology/service?

Providing streaming media for classroom use, or to broadcast student media or campus lectures is very popular. Web-based audio and video is so common place that most universities either have it or are trying to get it.

16. What have been their reactions?

Faculty love the streaming media service, as do students.

17. What was the role of the town or university IT department on this product/project?

I am with the Gelardin New Media Center (GNMC) which is part of the Library. The GNMC and Library IT are in the same division of the Library, but we are distinct departments. The Library's IT dept. has had no involvement with this project. University Information Services (UIS) has been integral to the project. UIS staff lead the weekly development meetings and have provided key development and maintenance support for the media service's integration with our authentication which goes the Blackboard our campus courseware system.

18. (or) Was this more due to the efforts of the library systems office?

19. Was this project really library driven or IT driven?

The project has been driven by the Library's GNMC, UIS and the Center for New Designs in Learning and Scholarship.

20. How did you get use input into this product / project?

    We had a pilot service for nearly 2 years and gained input from numerous faculty and students. We've also conducted usability studies.

21. How did that input change the product/project?

    Definitely improved usability of the service.

22. How does this product benefit your community?

    Media for courses is much more accessible.

23. How many iterations of this project did you try out before offering it to your users?

    Two. We've gone through about 5 or 6 iterations now.

24. What challenges and failures were encountered that may or my not have eventually led to success?

    At the beginning, the Sharestream team included only one person. Things went very slowly and were focused on programming, not interface design. Both pieces are essential.

    Putting out a product too early is risky because you could lose potential users if the product doesn't work as expected. If the user isn't committed to the success of the product, it's easier for them to bail out. We are just getting back some faculty who were initially disappointed with the service.

25. Is this product considered complete or in a maintenance mode, or is it sill in development?

It's still in development. The url is "media**pilot"** but the service is in production mode. There are numerous bugs and requirements yet to be fixed and completed.

26. Would you do this again if you were doing it today, why/why not?

It has been a long hard road, but even knowing what I do today, I don't see that we had any choice but to go in this direction given the type of staff at our disposal and funding available.

Pace University Library
Media Patch Medaline e. Philbert

1. Description of the community

Pace University, founded in 1906, is a private geographically dispersed institution with campuses in Lower New York City and Westchester County. Pace University offers three programs, bachelors, masters, and doctoral in the Dyson College of Arts and Sciences, Seidenberg School of Computer Science and Information systems, Law School, Lienhard School of Nursing, Lubin School of Business, and School of Education. Pace University is both a resident and commuter institution; a large percentage of the students are commuters. The composition of the student body is mainly female with a percentage slightly more than 60 percent. Further, 129 countries are represented by both immigrant and nonimmigrant students. Pace University Library is representative of the geographically dispersed Institution, with Lower Manhattan and Westchester County operations that are functionally interdependent and are centrally administered through the Office of the University Librarian. The Law Library in White Plains in Westchester County is functionally independent from the other libraries.

2. # of people in community (town, college, university)

According to the 2007 data, Pace University has about 16,101 people with the composition being as follows: 8,030 undergraduates, 4,6040 graduate students, 793 law students, 460 full time faculty, 730 part-time faculty, 963 full time staff, and 485 part-time staff.

3. Size of library staff

The library has 46 staff. This excludes the Law library which functions independently from the Mortola Library in Pleasantville, Birnbaum Library in New York City, and the Graduate Center Library in White Plains.

4. Size of library systems department (total # and FTE)

The Systems department comprise of 12 personnel including 6 Student Technical Assistants (STAs). This does not include the work of Technical Services (cataloging staff) and electronic services - both of these staff work with Systems people for systems related issues normal in libraries but not the rest of the university: digital technology and preservation issues, cataloging and marc records mapping, cataloging of electronic books.

5. Size of parent organization IT department (total # and FTE)

DoIT (Division of Information and Technology) has 95 Full-time staff members. The student staff count is very fluid. Currently DoIT has about 65 students on its active list.

6. Does the library interact regularly with the parent organization IT, depend on them, etc.

The Library interacts with DoIT on a regular basis. DoIT takes care of the critical servers of the university (security and backups), as well as all Library network needs, provides for repairs of laptop loaners, procures the computers from official university suppliers,

provides for data loads needed by the library such as patron files, and provides for programmer assistance for files needed by the library coming from the Banner system.

7. What kinds of services does the IT department typically provide for the library?

As stated in item #6, the Library is dependent on DoIT for its efficient and effective functionality.

8. Would you consider the IT department very innovative, at the cutting edge?

As far as 'innovative' and 'cutting edge' are concerned, we can be considered 'cutting-edge' relative to other universities with some of the things we've done with Administrative and back-office systems. Our Banner implementation, although leaving something to be desired on a business process/organizational point-of-view, was rather innovative because of the technology that we deployed it on and the number of components and modules that were implemented at the same time. We are using a larger number of features and related technology than most schools and have served as a reference for many other installations. I believe we lag behind in some aspects of instructional technology and that is mostly due to the recent budget issues that we are all facing. So, in summary, I would say that we are, at least, 'cutting-edge'.

9. Describe the projects/products development from inception to the point of implementation

In 2002, requests to have online students access course related media were constant, especially when the video was in the Library's collection. At that time, faculty instructed students to rent the media from Blockbusters or to purchase from one of the online movie vendors. Further, the Library didn't mail videos even among campuses for fear of damage in transit. In an attempt to provide remote access to videos, several production houses were contacted for permission to digitize and stream. Among them were Warner Brothers, Dan Curtis Productions, MBM, Sony, Swank Motion Pictures, Criterion Pictures, Dreamworks, Movielink, CinemaNow, PBS, WGBH/Boston, Paramount Pictures, ABC Video Enterprises, CBS/Fox Video, BBC World Wide both London and New York offices, and the Internet Movie Database (IMDB) to forge a relationship; the potential an educational market was also proposed to them as an untapped niche. Only two producers responded positively, Jim Pierson of Dan Curtis Productions granted permission to stream on a non-commercial basis, the production of Henry James' *Turn of the Screw*, and Rick Yankowski of Criterion Pictures provided the fee structure of $75 per class or a total fee of $150 for *The Innocents*.

Warner Brothers, to whom I wrote twice in 2002 and 2004, stated that although they were receiving requests for online uses, they've not made their products available online for any purposes. They expressed their concerns about the various security elements with online delivery, with emphasis on the creation and storage of the digital copy. Warner Brothers stated they were working on methods to address these security concerns and hopefully will be able to accommodate educational needs in the future. However, their response to my 2004 correspondence seeking permission to digitize two videos was

interesting and different. Basically, I was quoted Section 110(I) of the Copyright Act law and they highlighted and underlined the fifth item, "No transmission from an outside location or closed circuit TV into the classroom is allowed." I was further instructed to contact Swank Motion Pictures if my intent was different from what was expressed in their correspondence. I realized that Warner Brothers was clueless about the Teach Act to accommodate online instruction. My only reason for contacting Swank was to persuade them to use their "Goodwill" with the producers to expand their services to the online education sector; Swank caters to in-classroom/on-campus viewing. Although Robert Hunter, VP, Information Technology understood the viability for Swank, his challenge was to "sell" the idea to the producers. Mr. Hunter mentioned the idea at a conference with producers in California and reported to me that because of the various contract termination dates, it will be a while before this is explored. A couple of the other producers I contacted were thrilled initially about the prospect and said that it could be done, however, upon further investigation, I was told that I'd have to obtain permission as well from the director's guild, writers' guild, actors' guild and so forth, which would be daunting. I was further informed that television rights are more complex than movie rights to get IP distribution rights

At the Infocomm/EduComm Conference, in June 2004, I visited the Exhibition Hall and targeted exhibitors I thought may help solve my dilemma. ViewCast Corporation was one of the exhibitors who seemed to have met my needs and in particular, address the copyright issue. Representatives from ViewCast as well as from Video Corporation of America were invited to give a demonstration of their product to the Pace community

(library staff, systems/IT personnel, faculty, and administrators). The event was tapped by Educational Media which was later viewed by the Communications Manager, Division and Information Technology (DoIT), who had a scheduling conflict. The cost of the Interactive Video Network (IVN) was $65,570 which neither the Library nor the Institution would afford to pay. At first, it seemed I was back to square one, but the Communications Manager contacted me after viewing the presentation and said that he believe we can develop something in-house that would allow students to view videos without violating copyright. Because of the Communication Manager's relationship with one of the representatives (purchased most of the codec, encoder equipments from him), he was advised that he could build something in-house with the products purchased. The server composition is as follows:

- Pentium IV 3.4 GHz
- 300 GB SATA Drives (serial ATA) – splits data into Ray configuration to increase speed
- 2 G of RAM
- 1G for network connection (back plain)

Several meetings ensued, discussing the Library's need as well as those of the nursing school. The Library housed all the Medcom and Bates tapes for the nursing school. At the end of a nursing class, especially on a Friday, as many as 20-25 students huddled around one VCR machine to view the assigned tape which was not very conducive to learning. The Communications Manager and Network Manager developed an application called Media Patch Bay, similar to the IVN product. It worked on the same premise as IVN, using available pairs of the wiring to carry video and control working

signals. With further assistance from the representative of Video Corporation of America, the Communications Manager and Network Manager were able to develop an internal streaming system that uses the Microsoft Media 9 encoder package that allow the sharing of programs between the Mortola and Birnbaum Libraries at near DVD quality. A schematic diagram of the production was presented as well as a demonstration to library staff and faculty. It was at this meeting that the Communications Manager instructed the Library Systems Analyst to purchase relatively inexpensive and more streamlined combo players (DVD and VHS), for each of the major libraries. The composition of the players purchased is as follows:

- Pentium IV 32. GHz
- 1G RAM
- Win XP
- DVD/VHS player
- WMV Encoder – free

Since 2005 to present, the nursing students are accessing not only the Medcom and Bates tapes online via their Blackboard accounts, but also their professors' lectures that reside on the in-house server. The Director of the Nursing Resource Center had a very good relationship with the vendors and was able to secure licensing agreements to digitize the Medcom and Bates tapes.

The Library system personnel, in particular the webmaster, created a MediaPatch Lobby page with two entry points, one for the New York City campus and the other for the Pleasantville campus, as well as links to the free media players for Windows and Mac

users. The faculty request form, with a blurb and link to more information about MediaPatch, was created. Based on faculty location, the request gets forwarded to the respective campus. The MediaPatch team opted to have a trial run of the system in the summer with faculty from five disciplines. The trial period was extended to the fall to ensure MediaPatch robustness before an official launch of the system. In spring 2006 MediaPatch was launched officially to the Pace community.

10. Why did you select this particular technology over other products?

The cost impacted the decision to utilize available resources to build the server in-house to host the Medcom and Bates tapes for which the nursing school received permission to digitize. The relationship with VCA enabled the development of an application similar to IVN.

11. What was the inspiration for the project?

The fulfillment of the Library's mission *to maintain a physical and virtual environment that promotes learning, supports teaching and scholarship, and fosters lifelong intellectual growth and discovery by providing all members of the Pace community with access to needed information resources... using information to solve problems and fully participate in the global community as informed citizens.* Online students are entitled to the same services as on-campus students. Moreover, the emphasis on student-centeredness, making their expectations a priority was also a driving force in the persistent pursuit of the project even when the producers denied licensing permission and

the Institution stated there were insufficient funds to purchase the commercial product, IVN.

12. Did the project come about due to knowledge of a new technology/software?

The birth of MediaPatch was because of a need for video-on-demand for the online community, as well as for the on-campus students who wanted to view a video for a course, but could not access it because it was located at another campus. As stated previously, the Library did not mail videos for fear of being damaged in transit; they must be picked them up in person.

13. (or) Was this an idea in search of the software/technology to do it?

The secondary reason for MediaPatch was because of copyright stumbling blocks, in particular, producers not fully understanding the provisions of The Teach Act, and the prohibitive cost of the commercial product.

14. Was this an outcome of one individual or a team project or something else? Please describe.

MediaPatch is an outcome of a team project, the development and success are a result of the Communications Manager, Networking Manager, Library systems personnel, Access Services staff, Distance Education Librarian, and online faculty who use movies as part of the course. The initial two years, 2002-2004, when everything was still in its infancy, involved a lot of contacts via telephone, email, and mail to countless producers by

Medaline. The goal was to obtain digital licensing rights for the creation of a media file of titles that are in the Library's collection. During those conversations, it was suggested to the producers to provide a video-on-demand service to the academic community since they were not comfortable with the level of security Institutions could provide to protect their products on the Internet.

15. How would you describe your community in terms of their degree of comfort and acceptance of new technologies?

Library technologies in web 2.0 environment are familiar features for many library users; regular technology use (use of the circulating laptops) and remote access to resources may require a little handholding especially for the older students, otherwise, the general student population seems to be comfortable with available technologies.

16. Do you think there are factors that made them more amenable to this technology/service?

As stated above, most of the students are considered Generation Y, being born into communication technologies. As such, they enter college with a certain expectation of having access to technologies at their disposal. Once faculty was provided the web address to the MediaPatch lobby which they imbed into their Blackboard course, students just clicked on their campus in the Lobby at the respective time to view the video. It is a very simple process.

17. What have been their reactions?

Overall, students and faculty were very pleased with the service. As the requests for MediaPatch services increased, there was a constant need for control features, which the Library is currently addressing. There were a few instances when a faculty member allowed more than 50 students to access the system at the same time which prevented others from viewing the video once the maximum was reached. There were a few instances when the system was not functional remotely, even if it was playing locally in the Library, because of power surge or a change in the network system by DoIT. We had two Mac users issues that the Library systems programmer resolved; initially, the University did not support Mac users.

18. What was the role of the town or university IT department on this product/project?

DoIT, the university's IT department, played a pivotal role in the development of MediaPatch. As discussed in the inception to implementation section, it was because of the Communications Manager and Networking Manager that MediaPatch was born. When it was decided that Pace University could not afford the commercial product of $65,570, the Library was back to where it started until the Communications Manager informed Medaline that perhaps it can be done. They created a similar application to IVN, developed an in-house expandable server which currently houses the digitized files of the Medcom and Bates tapes, as well as other media products created by faculty. The player box they developed seemed lightly bigger than the standard CPU size, and as

discussed earlier, after a successful demonstration instructed the Library systems personnel to purchase the commercial version.

19. (or) Was this more due to the efforts of the library systems office?

The efforts of the Library systems office were more pronounced and continue to be so after the successful demonstration of the assembled player. The Library systems office purchased the commercial combo player, created the MediaPatch Lobby with respective campus locations and links to free media player download, created the MediaPatch request form with a blurb and link to an FAQ for more information about MediaPatch.

20. Was this project really library driven or IT driven?

Although the term MediaPatch was coined by the IT team, the project was really Library driven. The Library, through the Distributive Learning department, had to address the remote viewing of videos for the online community.

21. How did you get user input into this product / project?

During the first two years of trying to secure licensing permission to create media files for remote access, a few faculty members were aware because the requests for permission were for specific titles for their courses. In addition, the Library administrators, including the systems director, were kept abreast of my progress. When ViewCast and Video Corporations of American representatives agreed to demonstrate Interactive Video Network on campus, invitations were sent to DoIT, faculty, and Library staff and we had a very good representation. Moreover, I had Educational Media tape the presentation

which was viewed by those who had scheduling conflict, one of whom was the Communications Manager.

22. How did that input change the product/project?

When it was determined that the Institution will not purchase the commercial product. that's when the alternative was set in motion; the driving force was online faculty constant requests to find a solution that will allow the students to view videos remotely. Users' input was rich and varied and they were constantly reminded that it must all be done within the laws of copyright; there was a high level of energy. Because faculty wanted some control, it was decided to roll out the project in phases, first offering only viewing of streaming videos with no interaction from the viewer, the second phase offering interaction to the faculty only within a physical classroom setting from which on-campus users would benefit. Sling media was looked at an interactivity solution for faculty, whereby while the video was being played in the Library, it would be accessible by the faculty in the classroom via a laptop or desktop with control features to pause, stop and play. However, when MediaPatch was officially launched, faculty didn't have the demand for in-classroom viewing; instead requested that students view the videos outside of class time within a specified schedule thus freeing more class time for discussion and other activities.

23. How does this product benefit your community?

Besides its limitation of providing only viewing capabilities without any interaction from the user, MediaPatch was well received by the Pace community. No longer would students have to travel to another campus or write an authorization note to access a video

in the library other than their home library. Moreover, students had great difficulty obtaining a specific production version requested by their professors commercially; whereas Blockbusters didn't have the specific version, a copy was in the Library's collection. Further, faculty expressed their appreciation of the product in person and via email even if it was not upscale, because we moved from having nothing to something; faculty communicated with students the start time of the movie, the length of the movie and the duration of the loop so that students could calculate the start time of the movie within the specified time frame.

24. How many iterations of this project did you try out before offering it to your users?

Interestingly, we had no iterations; there were tests on a small scale of the various viewing levels of the digitized files: Dial Up, 56K, and T1. As stated earlier, MediaPatch, originally called Media Patch Bay, included the development of an expandable server in-house from existing equipments, and the development of a player to show videos between campuses, the library and classrooms, as well as remotely. Because of the success of the demonstration of the player, the Library was instructed to purchase commercial combo players for each location. A trial during the summer of 2005 of the project consists of only five faculty members from four disciplines. In fall of 2005, the trial period was extended with more faculty usage to test the robustness of the system. Consequently, in February 2006 we had an official launch of the system to the Pace community.

25. What challenges and failures were encountered that may or my not have eventually led to success?

The challenges were providing control features which we could not do adhering to copyright and accommodating Mac users; these were the primary challenges. Other challenges were faculty not utilizing the MediaPatch form to submit requests, not providing the two weeks advance notice to reserve MediaPatch, and scheduling two large classes that were beyond the maximum of 50 simultaneous users. In addition, there were instances when there was a power surge or maintenance by DoIT that affected the address to MediaPatch; this was usually resolved quickly by the Library systems personnel as soon as it was brought to our attention.

26. Is this product considered complete or in a maintenance mode, or is it sill in development?

MediaPatch is considered complete. Since implementation, upgrades have been made because of wear and tear of the equipment. However, the Library is vigilant and is keeping a finger on the pulse for a complete overhaul, involving licensing permission and control features. The Library is currently trialing a product that meet those needs. MediaPatch continues to be the lifeline even during the trial of another product; a faculty member who gave only a few days notice, could not have a video included with the others in the trial product and settled to use MediaPatch which her students utilized.

27. Would you do this again if you were doing it today, why/why not?

I would do it again even if it were today because it's a collaborative learning exercise for me. Today, I'd like to think that producers are more receptive to academia, therefore

making licensing permission easier to obtain. As you may be aware, Internet Movie Database has begun offering full videos online. It's just a matter of time before others follow.

Dartmouth College
Guide by Cell Andi Bartelstein

1. Description of the community

   **Small liberal arts college (4-year, private, Ivy League)**

2. # of people in community (town, college, university)

   **Approximately 4,100 undergraduate, 1,600 graduate students**

3. Size of library staff

   **177.50 FTE**

4. Size of library systems department (total # and FTE)

   **7 total (FTE unknown)**

5. Size of parent organization IT department (total # and FTE)

   **Unknown**

6. Does the library interact regularly with the parent organization IT, depend on them, etc.

   **Yes**

7. What kinds of services does the IT department typically provide for the library?

   **Academic and administrative computing, technical infrastructure**

8. Would you consider the IT department very innovative, at the cutting edge?

   **Don't really know, but Dartmouth was one of the first completely wireless campuses.**

9. Describe the projects/products development from inception to the point of implementation

**This was a small project that didn't require a large committee or a lot of advance planning. Began investigating use of cell phone audio tours in August 2007, implemented a pilot project at the beginning of October 2007.**

10. Why did you select this particular technology over other products?

**Dept. head had read about the use of cell phone audio tours in museums and other institutions and wanted to implement it (had specifically read about Guide by Cell).**

11. What was the inspiration for the project?

**See no. 10.**

12. Did the project come about due to knowledge of a new technology/software?

**Yes.**

13. (or) Was this an idea in search of the software/technology to do it?

**No.**

14. Was this an outcome of one individual or a team project or something else? Please describe.

**One individual developed and coordinated the tour and solicited colleagues and students to record the content. Additional staff helped create marketing materials.**

15. How would you describe your community in terms of their degree of comfort and acceptance of new technologies?

**Quite accepting.**

16. Do you think there are factors that made them more amenable to this technology/service?

**Most people have cell phones so it wasn't really introducing a new technology; it was using an existing technology to offer a new service.**

17. What have been their reactions?

**Positive – although it's been difficult to elicit specific feedback about the tour.**

18. What was the role of the town or university IT department on this product/project?

**None.**

19. (or) Was this more due to the efforts of the library systems office?

**No. Entirely driven by the Research & Instruction Services Dept.**

20. Was this project really library driven or IT driven?

**Library driven.**

21. How did you get use input into this product / project?

**Publicized through various campus channels (websites, campus publications) and solicited feedback.**

22. How did that input change the product/project?

**Didn't get very much feedback; just a very small number of anecdotal comments (all positive).**

23. How does this product benefit your community?

**Provides "just in time, just enough" physical orientation to the library.**

24. How many iterations of this project did you try out before offering it to your users?

**Not really multiple iterations; started small and added tour segments as we went along.**

25. What challenges and failures were encountered that may or my not have eventually led to success?

**Not sure that people find it useful in an ongoing way; once you've listened to the tour you probably won't listen again (unless we add to it substantially). Difficult to elicit feedback from users.**

26. Is this product considered complete or in a maintenance mode, or is it sill in development?

**Unfortunately we have just learned that due to budget cuts we will need to discontinue the cell phone tour. We do plan to upload the content to the library website for download as a podcast.**

27. Would you do this again if you were doing it today, why/why not?

**Probably would; however the budget issues preclude this.**

Ann Arbor District Library
Gaming Tournament Management
Eli Neiburger, Associate Director for IT & Product Development

1. Description of the community

Ann Arbor is a university town that loves its library, but with an unusual amount of economic and ethnic diversity for a town of its size. This gives the library a dedicated core of enthusiastic library users but a challenge to engage the rest of the community who may not be as interested in or aware of library services.

2. # of people in community (town, college, university)

Our service population is about 160,000.

3. Size of library staff

The library employs approximately 250 people.

4. Size of library systems department (total # and FTE)

Our IT department is 11 people, 10.5 FTE.

5. Size of parent organization IT department (total # and FTE)

We do not have a parent organization.

6. Does the library interact regularly with the parent organization IT, depend on them, etc.

We do not have a parent organization.

7. What kinds of services does the IT department typically provide for the library?

We don't outsource, so IT provides all technology used at the library including server & desktop support for staff and public, network infrastructure, phones & copiers, software development, training, content development and event production.

8. Would you consider the IT department very innovative, at the cutting edge?

Well, I would say so, but I'm biased.

9. Describe the projects/products development from inception to the point of implementation

We're not big on formal processes. Product development either starts with a request from a customer (staff or public) or an idea within the department. We decide what part of the team should work on the project, prototype or develop design docs if merited, develop, test, and rollout. Most projects wind up on an individual's desk with support from their coworkers, and they proceed with development autonomously with occasional consultation with management.

10. Why did you select this particular technology over other products?

Because you mentioned gaming in your letter, I'll treat 'this project' as our online tournament management system, even though it's not very 'cutting edge' technology from our perspective. We needed a system to manage large, complex competitive events that offered attendees a richer, more professional experience and the feeling of being a part of something big. Online leaderboards for our gaming events was an obvious opportunity as the tools that were out there were mostly focused on LAN parties and a very hardcore userbase; we wanted something that was more accessible and inviting to casual players.

11. What was the inspiration for the project?

That's an odd question; I don't see software development as often having inspiration; it's more like what is the problem you are trying to solve with the application, and what interface conventions are already out there that you can build upon. I suppose the closest thing to inspiration for this project would be Xbox Live, although none of us involved have ever personally used the service.

12. Did the project come about due to knowledge of a new technology/software?

No, I think that is a losing proposition for libraries. Projects should always be driven by customer requirements; technology and new tools only impact how the project is implemented. In this case, this software is just a PHP module for Drupal, which certainly can't be called new anymore.

13. (or) Was this an idea in search of the software/technology to do it?

No, it was a need that we decided to devote resources to fulfilling.

14. Was this an outcome of one individual or a team project or something else? Please describe.

This project passed through the hands of several developers over its life, but it was generally only being worked on by one developer at a time in conjunction with my on-the-fly design and consultation. As something that fits into the Frill category of useful and enticing but ultimately nonessential library services, the project spent very little time on the front burner.

15. How would you describe your community in terms of their degree of comfort and acceptance of new technologies?

It depends. There is a large web people / geek / tech entrepreneur crowd in our town that provides an instant audience for new ideas, but we also have many users of our website who don't use many other websites and are sensitive to information overload. So we always plan our public-facing interfaces to allow users to slowly discover functionality that they may be interested without hitting them in the face with it. For example, our catalog tags are neither promoted nor explained anywhere on our site and you don't even see them at low screen resolutions; but the links are there, small and understated, for users who want to utilize our products more deeply.

16. Do you think there are factors that made them more amenable to this technology/service?

Well, in this case, the audience for this product is mostly teenagers, so they have their whole digital native experience to draw upon, and we can hit them with our best shot, as it were.

17. What have been their reactions?

They love it. They argue over statistics and claim first post whenever possible.

18. What was the role of the town or university IT department on this product/project?

Not applicable.

19. (or) Was this more due to the efforts of the library systems office?

Uh, yes? What is a library systems office? =)

20. Was this project really library driven or IT driven?

I would say that this product was IT driven as we saw the need and the potential and went for it.

21. How did you get use input into this product / project?

Through the blogs and at the events, the players let us know what they like and don't like, and we discover what works well and what doesn't.

22. How did that input change the product/project?

Each iteration (we're now on our third ground-up rebuild) has been impacted heavily by user comments and suggestions. Once the framework of an idea is out the door, feedback gets much richer, as it's always easier for people to suggest enhancements than concepts.

23. How does this product benefit your community?

It gives the library a way to reach out to and endear itself to a very tough, critical demographic that otherwise would have little use for their library. It gives those participants an opportunity to consume the content that they love in a free, public, social environment without commercial influence, and it gives all kids, not just the athletic ones, the opportunity to compete and excel with their peers.

24. How many iterations of this project did you try out before offering it to your users?

None, really, we used each iteration at live events to see how it went.

25. What challenges and failures were encountered that may or my not have eventually led to success?

The product hasn't really had any challenges or failures other than the challenge of quickly handling registrations and results. It's definitely a trial by fire which always makes for a strong project, but in my opinion, the vacuum that this project filled was so large that success was easy.

26. Is this product considered complete or in a maintenance mode, or is it sill in development?

This project is in active development and has become a web service that any library can use for free. See wiki.gtsystem.org for more.

27. Would you do this again if you were doing it today, why/why not?

Heck yeah; it's easy to say that we would have skipped our incremental iterations that got us to this point, but those were critical to keep functionality growing with only limited development resources devoted to the project.

Arizona State University
Research Compliance Office
P.O. Box 871103
Tempe, AZ 85287-1103
Phone: 480-965-6788
Fax: (480) 965-7772

*For Office Use Only:*
Date Received: _____
HS Number: _____

# ARIZONA STATE UNIVERSITY
# APPLICATION FOR EXEMPT RESEARCH

| | | |
|---|---|---|
| **PROTOCOL TITLE:**<br>**Great Libraries: The Technology and Implementation Behind the Service** | | **DATE OF REQUEST:**<br>March 21, 2008 |
| **PRINCIPAL INVESTIGATOR:**<br>**Scott P. Muir** | **DEPARTMENT/CENTER:**<br>**ASU Libraries - DPC** | **UNIVERSITY AFFILIATION:**<br>☐ Professor<br>☐ Associate Professor<br>☐ Assistant Professor<br>☐ Instructor<br>x☐ Other: **Please specify**. ("Other" categories may require prior approval. Students **can not** serve as the Principal Investigator)<br><br>**I am an Administrative Professional-rank: Full** |
| **CAMPUS ADDRESS:**<br>**(include campus mail code)**<br><br>**Mail code 1420**<br>**411 N. Central Ave.**<br>**Suite L1-61B**<br>**Phoenix, AZ 85004-0312** | **PHONE: 602.496.0311**<br><br>**E-MAIL: scott.muir@asu.edu** | |
| List all co-investigators. (Attach an extra sheet, if necessary.) A co-investigator is anyone who has responsibility for the project's design, implementation, data collection, data analysis, or who has contact with study participants. | | |
| **CO-INVESTIGATOR: None** | **DEPARTMENT/CENTER:** | **UNIVERSITY AFFILIATION:**<br>☐ Professor<br>☐ Associate Professor<br>☐ Assistant Professor<br>☐ Instructor<br>☐ Other: **Please specify**. |
| **CAMPUS ADDRESS:**<br>**(include campus mail code)** | **PHONE:**<br><br>**EMAIL:** | |
| **CO-INVESTIGATOR:** | **DEPARTMENT/CENTER:** | **UNIVERSITY AFFILIATION:**<br>☐ Professor<br>☐ Associate Professor<br>☐ Assistant Professor<br>☐ Instructor<br>☐ Other: **Please specify**. |
| **CAMPUS ADDRESS:**<br>**(include campus mail code)** | **PHONE:**<br><br>**EMAIL:** | |

## STUDY OVERVIEW

1. Provide a **brief** description of the **background, purpose, and design** of your research. Avoid using technical terms and jargon. Be sure to list all of the **means you will use to collect data** (e.g. tests, surveys, interviews, observations, and existing data). Provide a short description of the tests, instruments, or measures and **attach copies of all instruments and cover letters for review.** *If you need more than a few paragraphs, please attach additional sheets.* **FOR ALL OF THE QUESTIONS, WRITE YOUR ANSWERS ON THE APPLICATION RATHER THAN JUST SAYING SEE ATTACHED.**

Libraries are often leaders in their communities. Some of them become leaders because of their buildings and their collections, but they can also become leaders because of what they do and how they interact with their community. Many of the libraries I will study are leaders in their communities; my research focuses on what they do in the way of a specific, innovative project with a strong public service or outreach component. The results of my project will offer insights into how libraries can provide innovative services, and will give libraries strategies to strengthen their roles as leaders in their communities through technological projects.

Every technology can be viewed in terms of its impact on culture, people of different genders and ethnicities, etc. This interest came about because of a series of conversations with colleagues about why some libraries feel they cannot do great things. Rather than focus on the negative, I wanted to explore the positive aspects and see what can be learned and applied in many different libraries. In keeping with my degree, I am interested in exploring the strategies and the reasons that make a library technology project come into fruition, and not the specifics of the technology used.

This research will contribute toward the completion of my second post-graduate degree, a Master's of Science in Technology Studies (through Eastern Michigan University), with a concentration in Interdisciplinary Technology.

Sample survey attached

## RECRUITMENT

2. Describe how you will recruit participants (attach a copy of recruitment materials).

To solicit the libraries for the survey, I pursued multiple paths. One is based on my personal knowledge of some of the technology-based services developed by libraries. I also consulted with my colleagues to identify other libraries that may be candidates for my research, and I worked with agencies such as the Association of Research Libraries and the American Library Association to garner additional potential candidates. There are no recruitment materials. There will only be a request from me for participation.

## PROJECT FUNDING

3. How is the research project funded? (A copy of the grant application(s) must be provided prior to IRB approval)
__Research is **not funded** (Go to question 4 )
_x_ Funding decision is pending
__Research is **funded**

a) What is the source of funding or potential funding? (Check all that apply)

| | | |
|---|---|---|
| _____ Federal | _____ Private Foundation | ___x__ Department Funds |
| _____ Subcontract | ____x_ Fellowship | _____ Other _____ |

b) Please list the name(s) of the sponsor(s): AMIGOS

c) What is the Project grant number and title (for example NIH grant number)?

d) What is the ASU account number/project number?

e) Identify the institution(s) administering the grant(s): AMIGOS and ASU

## STUDY POPULATION- If you are doing data analysis only, please write DA.

| | | | |
|---|---|---|---|
| 4.Indicate the **total number of participants** that you plan to include or enroll in your study. | 10+ sites | Indicate the **age range** of the participants that you plan to enroll in your study | 22 to 75 |

## SUPPLEMENTAL MATERIALS

5. Attach a copy of the following items as applicable to your study (Please check the ones that are attached):
__Research Methods (Research design, Data Source, Sampling strategy, etc )
__Any Letters (cover letters or information letters), Recruitment Materials, Questionnaires, etc. which will be distributed to participants
__If the research is conducted off-site, provide a permission letter where applicable
_x_If the research is part of a proposal submitted for external funding, submit a copy of the FULL proposal

Note: The information should be in sufficient detail so IRB can determine if the study can be classified as EXEMPT under Federal Regulations 45CFR46.101(b).

## DATA USE

6. How will the data be used? (Check all that apply)

| | |
|---|---|
| ☐ Dissertation | x☐ Publication/journal article |
| x☐ Thesis | ☐ Undergraduate honors project |
| ☐ Results released to participants/parents | ☐ Results released to employer or school |
| ☐ Results released to agency or organization | x☐ Conferences/presentations |
| ☐Other *(please describe):* | |

## EXEMPT STATUS

**7. Identify which of the 6 federal exemption categories below applies to your research proposal and explain why the proposed research meets the category. Federal law 45 CFR 46.101(b) identifies the following EXEMPT categories. Check all that apply to your research and provide comments as to how your research falls into the category.**

SPECIAL NOTE: The exemptions at 45 CFR 46.101(b) do not apply to research involving prisoners. The exemption at 45 CFR 46.101(b)(2), for research involving survey or interview procedures or observation of public behavior, does not apply to research with children, except for research involving observations of public behavior when the investigator(s) do not participate in the activities being observed.

__x__(7.1) Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

**Please provide an explanation as to how your research falls into this category:**

**This will be research into the practices of other libraries that have implemented new technologies. If grant funding is received, these will be onsite interviews. Without funding, it will be email, mail, and telephone. Libraries regularly conduct and participate in survey and discussion of this nature.**

____(7.2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; AND (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

**Please provide an explanation as to how your research falls into this category:**

____(7.3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if: (i) The human subjects are elected or appointed public officials or candidates for public office; or (ii) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.
**Please provide an explanation as to how your research falls into this category:**

____7.4) Research, involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.
**Note-Please review the OHRP Guidance on Research Involving Coded Private Information or Biological Specimens:**
**http://www.hhs.gov/ohrp/humansubjects/guidance/cdebiol.pdf**
**Please provide an explanation as to how your research falls into this category:**

___ (7.5) Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: (i) Public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs. **(Generally does not apply to the university setting)**

____(7.6) Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.
**Please provide an explanation as to how your research falls into this category:**

**PRINCIPAL INVESTIGATOR**

In making this application, I certify that I have read and understand the ASU Procedures for the Review of Human Subjects Research and that I intend to comply with the letter and spirit of the University Policy. I may begin research when the Institutional Review Board gives notice of its approval. I must inform the IRB of ANY changes in method or procedure that may conceivably alter the exempt status of the project. **I also agree and understand that records of the participants will be kept for at least three (3) years after the completion of the research**
Name (first, middle initial, last):

X Signature: Scott Pm Date: 4/23/2008

| **FOR OFFICE USE:** | This application has been reviewed by the Arizona State University IRB:<br>☐ Exempt Category/Categories: _____<br>☐ Approved ☐ Deferred to other review<br>☐ Recommended that investigator submit for expedited or Full Board review. |
|---|---|

| Authorizing Signature:<br>**X** | Date: |
| --- | --- |

Description of the community
# of people in community (town, college, university)
How would you describe your community in terms of their degree of comfort and acceptance of new technologies?
Do you think there are factors that made them more amenable to this technology/service?
What have been their reactions?
Size of library staff
Size of library systems department (total # and FTE)
Size of parent organization IT department (total # and FTE)
Does the library interact regularly with the parent organization IT, depend on them, etc.
What kinds of services does the IT department typically provide for the library?
Would you consider the IT department very innovative, at the cutting edge?
What was the inspiration for the project?
Did the project come about due to knowledge of a new technology/software?
(or) Was this an idea in search of the software/technology to do it?
Was this an outcome of one individual or a team project or something else? Please describe.
Describe the projects/products development from inception to the point of implementation.
What was the role of the town or university IT department on this product/project?
(or) Was this more due to the efforts of the library systems office?
Was this project really library driven or IT driven?
How did you get use input into this product / project?
How did that input change the product/project?
How does this product benefit your community?
How many iterations of this project did you try out before offering it to your users?
What challenges and failures were encountered that may or my not have eventually led to success?
Is this product considered complete or in a maintenance mode, or is it sill in development?
Would you do this again if you were doing it today, why/why not?

## Scott Muir

**From:** Alice Garnett
**Sent:** Thursday, May 29, 2008 9:20 AM
**To:** Scott Muir
**Subject:** re: exempt study
**Attachments:** Muir 0805002960.pdf

Scott:

The IRB has found your study "Great Libraries: The Technology and Implementation Behind the Service" exempt under Federal regulations, 45 CFR, Part 46.101(b)(2). You should receive a signed copy approval notice in campus mail within a few days.

Regards,

Alice

*Alice Garnett*
IRB Coordinator
Research Compliance Office
Interdisciplinary Building B, Room 371
Arizona State University
(480) 965-6788 phone
(480) 965-7772 fax

alice.garnett@asu.edu
http://researchadmin.asu.edu/compliance

ARIZONA STATE UNIVERSITY

Research Compliance Office
Office for Research & Sponsored Projects Administration
P.O. Box 873503
Tempe, AZ 85287-3503

Phone
(480) 965-6788
Facsimile
(480) 965-7772

| | |
|---|---|
| **To:** | Scott Muir<br>UCENT |
| **From:** | Mark Roosa, Chair<br>Soc Beh IRB |
| **Date:** | 05/29/2008 |
| **Committee Action:** | **Exemption Granted** |
| **IRB Action Date:** | 05/29/2008 |
| **IRB Protocol #:** | 0805002960 |
| **Study Title:** | Great Libraries: The Technology and Implementation Behind the Service |

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(2) .

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.

Date

Dear _____:

In addition to my role as Director of the Downtown Phoenix campus Library at Arizona State University, I am also a Master's degree student under the direction of Professor Denise Pilato in the College of Technology at Eastern Michigan University.

I am conducting a research study to understand the processes behind a successful implementation of a technology project and what similarities can be determined. I am inviting your participation, which will involve a telephone interview with key players in this technology project, including the library director, the technology department or head, the project planner and implementer, etc. The interview should take no more than ninety minutes. Your participation in this study is, of course, voluntary. You have the right to withdraw; however, this will mean your institution will not be included in my study.

My goal is to understand what enabled these projects to be successful and thereby contribute to the libraries success and their role as a leader in their community. By understanding the successes at a series of libraries, I hope to determine if there are similarities that can be used as models at other libraries in their technology projects. There are no foreseeable risks or discomforts to your participation.

My intent is to publish this information as a series of case studies. The results of this study will be used in reports, presentations, or publications, along with the name of your library and institution. Part of this study is being funded by a Fellowship award I received through AMIGOS which requires a presentation to them. I may choose to quote you or a member of your staff, if that is agreeable. I will consult with you to determine if any information needs to remain confidential.

If you have any questions concerning the research study, please contact me. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Research Compliance Office, at (480) 965-6788.

I appreciate your willingness to participate. If you agree to participate, please sign below and return to me. Once you agree to participate, I will contact you to set up a telephone interview.

Sincerely,

Scott P. Muir
Director of the Downtown Phoenix campus Library
Information Commons Library
Arizona State University
411 N. Central Ave. Ste L1-61
Phoenix, AZ 85004-1213

(602) 496.0311 voice
(602) 496.0312 fax

Signature of Library Director / Dean Date

Grant Activity Summary Report XYS009
Scott P. Muir
ASU Libraries

My initial plan was to prepare a survey and conduct the interviews over the phone. As I was going into this process, I had a few sites in mind, libraries with which I was already familiar. I expanded my list by soliciting nomination and self-nominations over some electronic lists on the Internet, and from friends and colleagues. Throughout the process I refined my list by evaluating the sites that met my specific criteria, described below.

I used Phoenix Public Library as my initial test study. I am on the Board of Advisors of that Library and I know several of the key administrators quite well. This gave me an opportunity to work with them and refine my survey instrument, as needed. Following their responses, I determined that the most effective approach would be to have the sites send a written response.

As I prepared to survey other sites, I became aware of a grant opportunity from AMIGOS Library Services. AMIGOS is a library cooperative offering services in Arizona, Arkansas, New Mexico, Oklahoma, and Texas. The Fellowship application process is only open to employees of AMIGOS member libraries. In the application process I asked for $7,500 to pay for travel to the sites which would allow me to conduct in person interviews (a change of plans). I felt this would enable more in-depth interviews. I also asked for money to purchase a digital tape recorder and for money for phone calls.

The actual grant award of $1500 was considerably less than my request, but still appreciated. After revaluating the process in terms of the award amount, I decided to forgo the travel which was now price prohibitive and forgo doing interviews over the phone, and return to the idea of written responses. This then left me with the costs of the research course from Eastern Michigan University as my only significant expense. I used the grant money to subsidize those costs, paying the remainder of them myself. The grant award from AMIGOS was made to the University, not me personally. Because of the grant, I had to add one additional step in the process, and that was getting my project approved by the Institution Research Board of Arizona State University – where I am employed. I received a waiver from the process since I was only asking my participants to complete a written survey, although I had to get all my respondents to sign a release statement. Eastern Michigan University, where I am a student, advised that the ASU IRB process would be sufficient and I did not need to go through their IRB processes. The AMIGOS grant application and the ASU IRB approval process added over nine months to my timeline.

I then began sending out surveys to sites in August of 2008, and I continued to identify additional sites to add to my pool. The final added sites received surveys in late October 2008. Some sites responded to the survey in just matter of days. Other sites took much longer. As my time process began to drag and in order to draw this process to some sort of close, I finally set a "final" deadline of January 31, 2009. I felt it was critical that I began my analysis and writing process and that I could no longer afford to delay any

further. Amazingly, with the "final" deadline set and some phone calls to sites prodding them to finish, all the sites in my list responded and I had received their responses within a few days of that deadline. One of my key disappointments was those sites where I received absolutely no response to my request for assistance with the survey.

I am now beginning to analyze the results and write my report and case studies. My goal is to have the final report submitted to my advisor before December 31, 2009. The granting agency expects a final report by spring 2010.

**Criteria for selection and inclusion**

My criteria for inclusion in this process required that first, that this be a project that primarily benefits the public, i.e. the libraries' user community. As I describe earlier in my paper, many early technology projects involved strategies that made traditional library processes easier and I did not wish to include those. I also wanted this project to be a technology or service that had some degree of development work required by the organization that implemented it. I wanted to go beyond out-of-the-box software and hardware. Indeed, many libraries are using such products and these products may offer excellent service, but that did not answer my questions about the process as fully. Since my intent was to study some of the implementation processes more in-depth, I excluded those products. The final result gave me the eleven sites I included. I also limited my scope to libraries in the United States or Canada since I felt I would best understand their organization model and the costs of surveying via the phone and in person would be lower.

**Budget**

| | |
|---|---|
| Amount received | $1,500.00 |
| Expenses | $1,549.30 |
| Course STS 699 from Eastern Michigan University | |

I paid the $49.30 balance on this course out of my own pocket.

Report Submitted
April 9, 2009

Site
Contact

1. Description of the community
2. # of people in community (town, college, university)
3. Size of library staff
4. Size of library systems department (total # and FTE)
5. Size of parent organization IT department (total # and FTE)
6. Does the library interact regularly with the parent organization IT, depend on them, etc.
7. What kinds of services does the IT department typically provide for the library?
8. Would you consider the IT department very innovative, at the cutting edge?
9. Describe the projects/products development from inception to the point of implementation
10. Why did you select this particular technology over other products?
11. What was the inspiration for the project?
12. Did the project come about due to knowledge of a new technology/software?
13. (or) Was this an idea in search of the software/technology to do it?
14. Was this an outcome of one individual or a team project or something else? Please describe.
15. How would you describe your community in terms of their degree of comfort and acceptance of new technologies?
16. Do you think there are factors that made them more amenable to this technology/service?

17. What have been their reactions?
18. What was the role of the town or university IT department on this product/project?
19. (or) Was this more due to the efforts of the library systems office?
20. Was this project really library driven or IT driven?
21. How did you get use input into this product / project?
22. How did that input change the product/project?
23. How does this product benefit your community?
24. How many iterations of this project did you try out before offering it to your users?
25. What challenges and failures were encountered that may or my not have eventually led to success?
26. Is this product considered complete or in a maintenance mode, or is it sill in development?
27. Would you do this again if you were doing it today, why/why not?

Author Information

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Paper completed December 2009